

SERVICE MANUAL & PARTS LIST

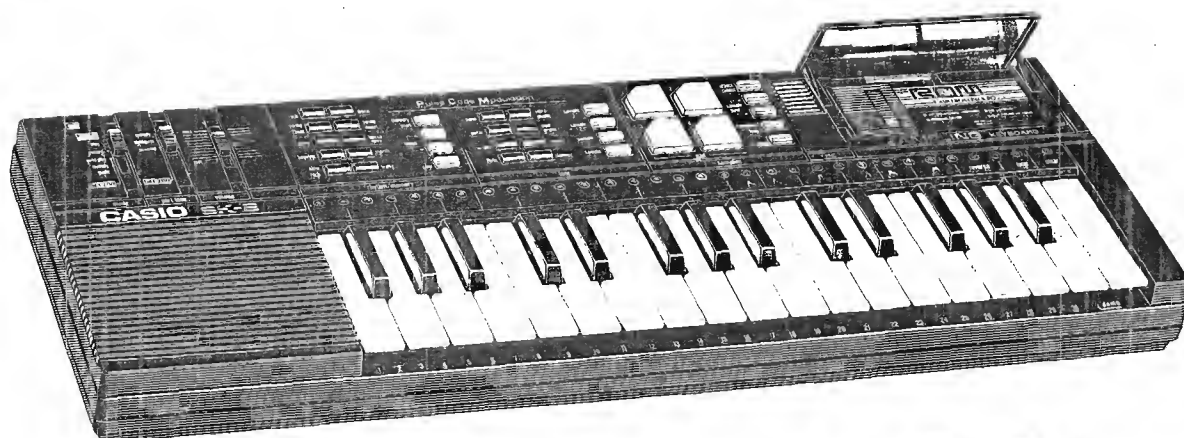
(without price)

ELECTRONIC KEYBOARD

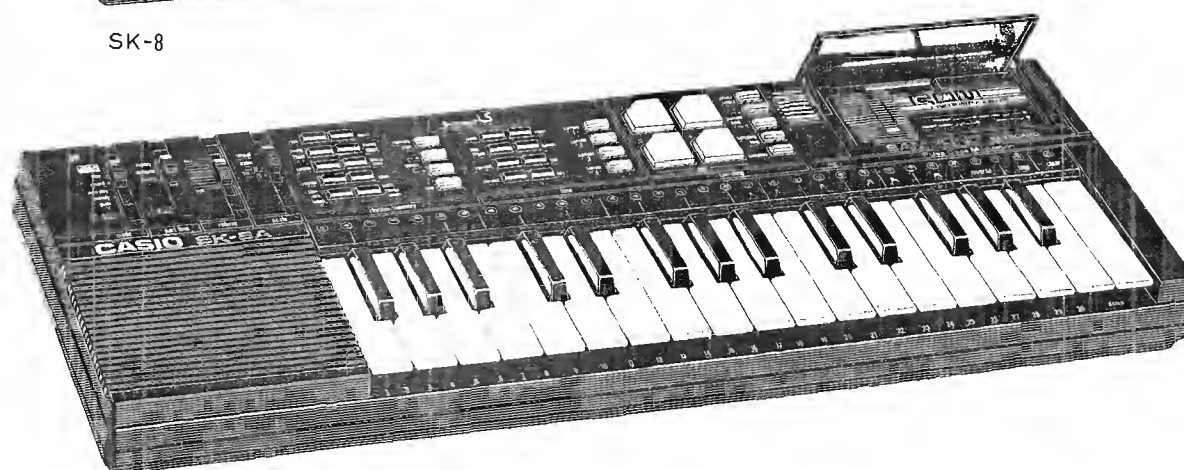
SK-8

SK-8A [ARABIC]

MAR. 1987



SK-8



SK-8A

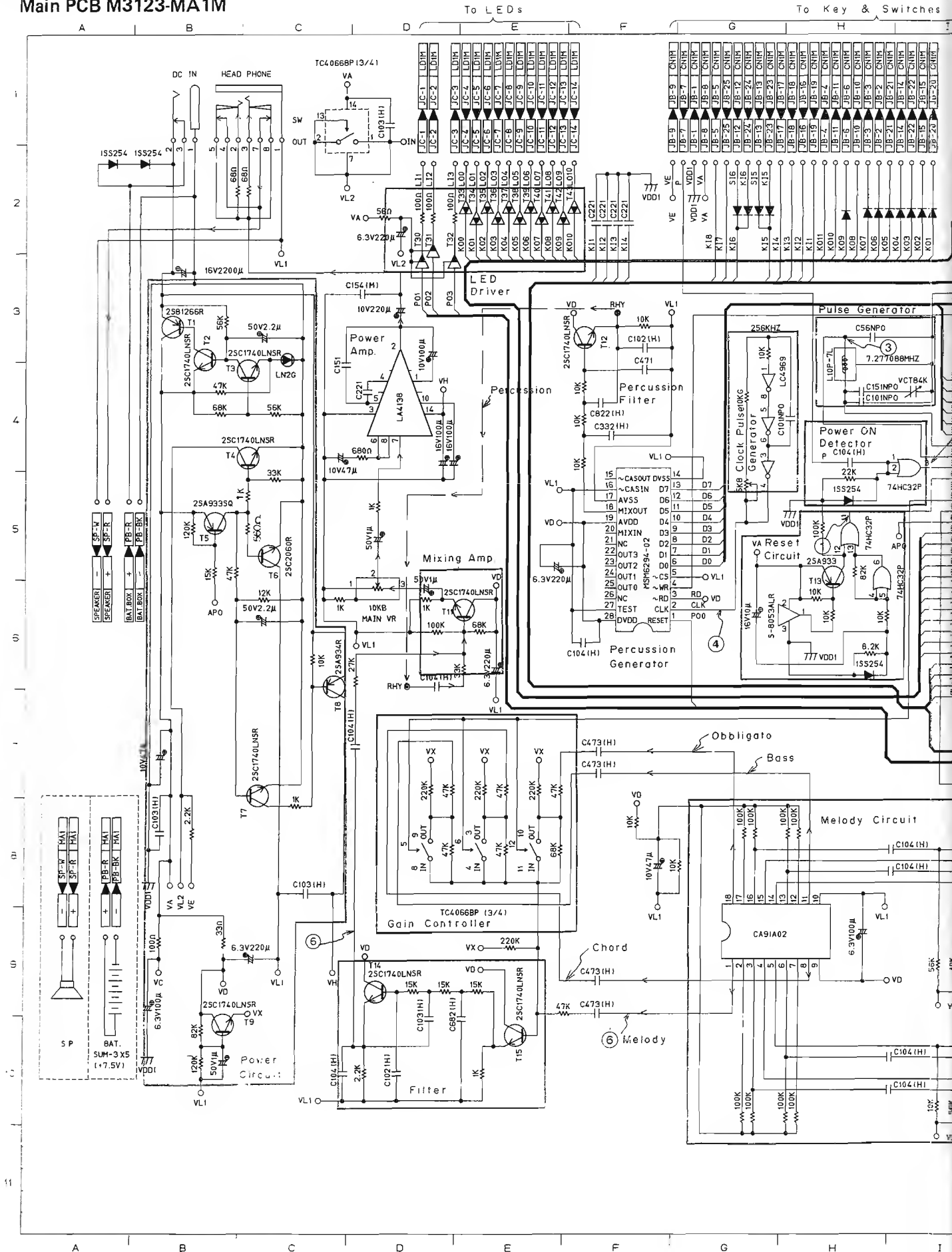
CASIO®

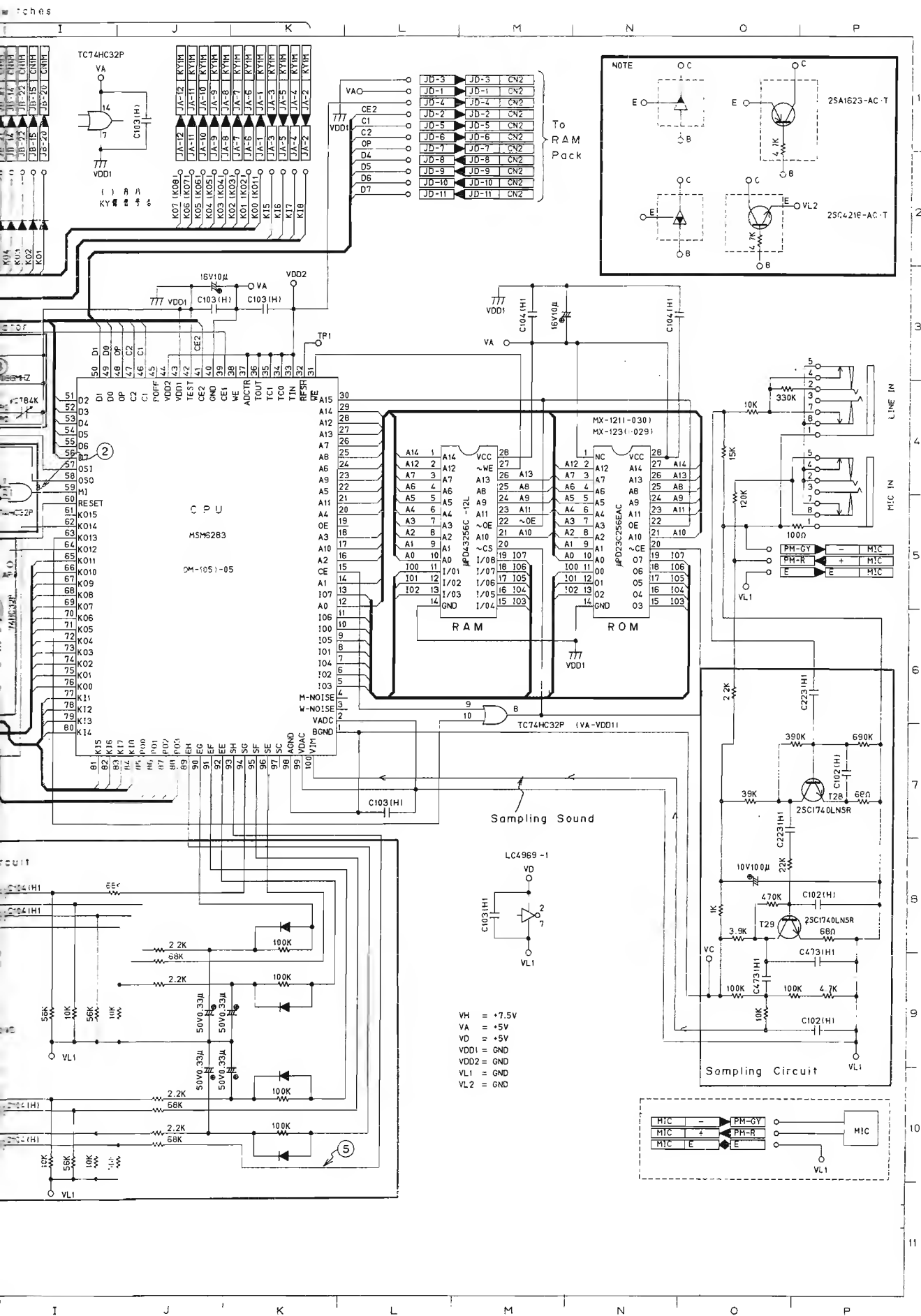
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1. SCHEMATIC DIAGRAM

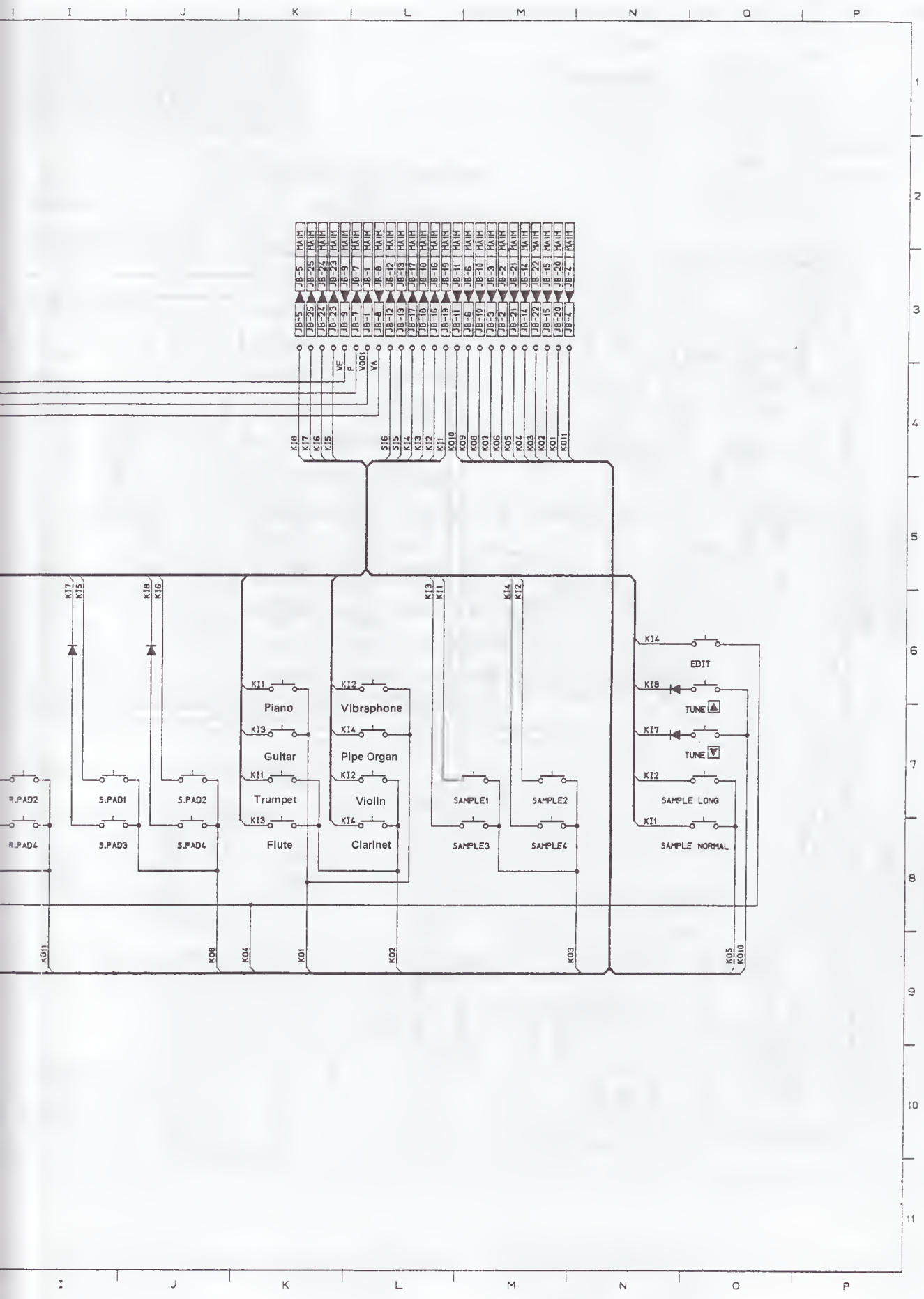
1-1. Main PCB M3123-MA1M



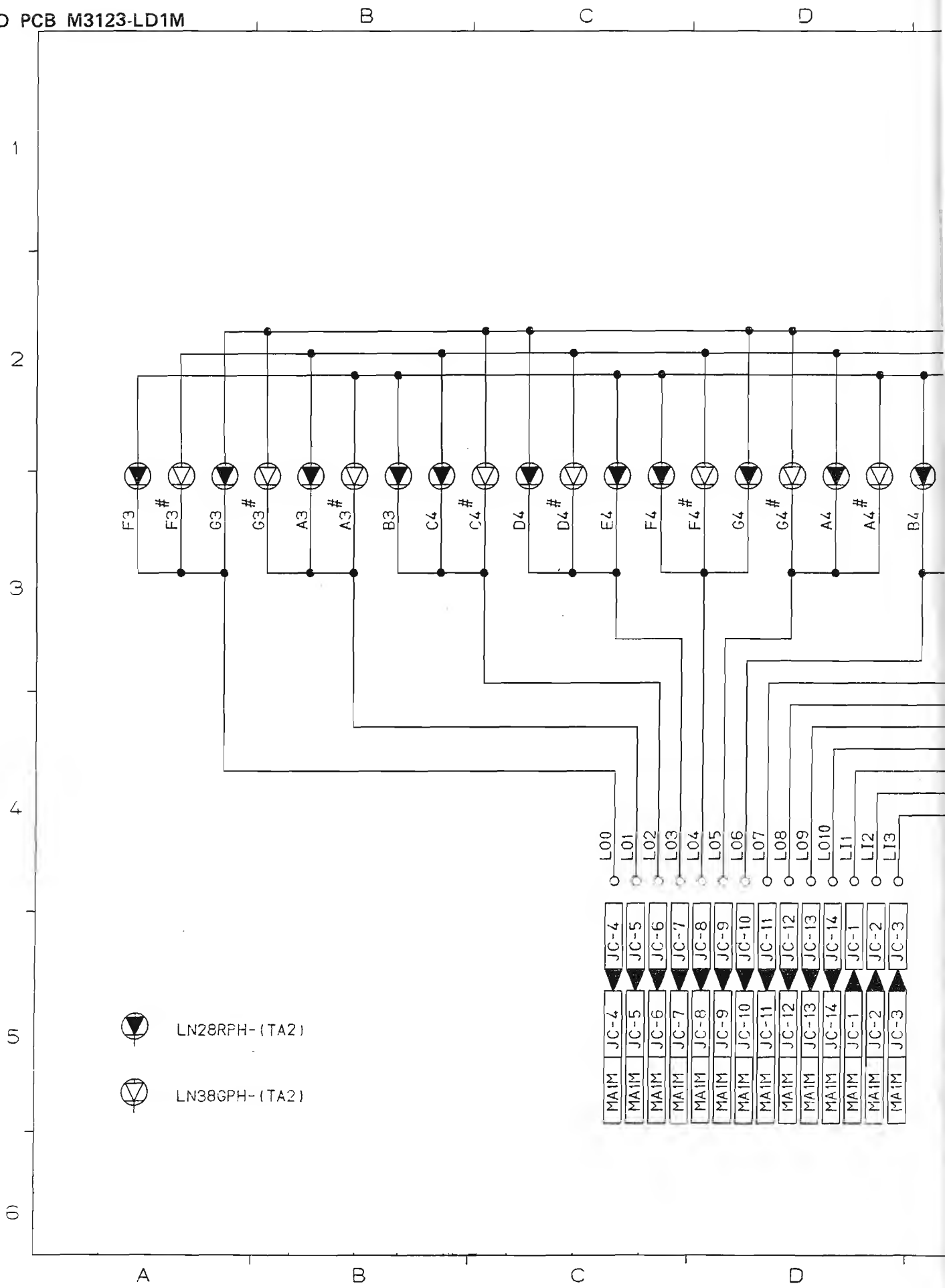




1-2. Console PCB M3123-CN1M



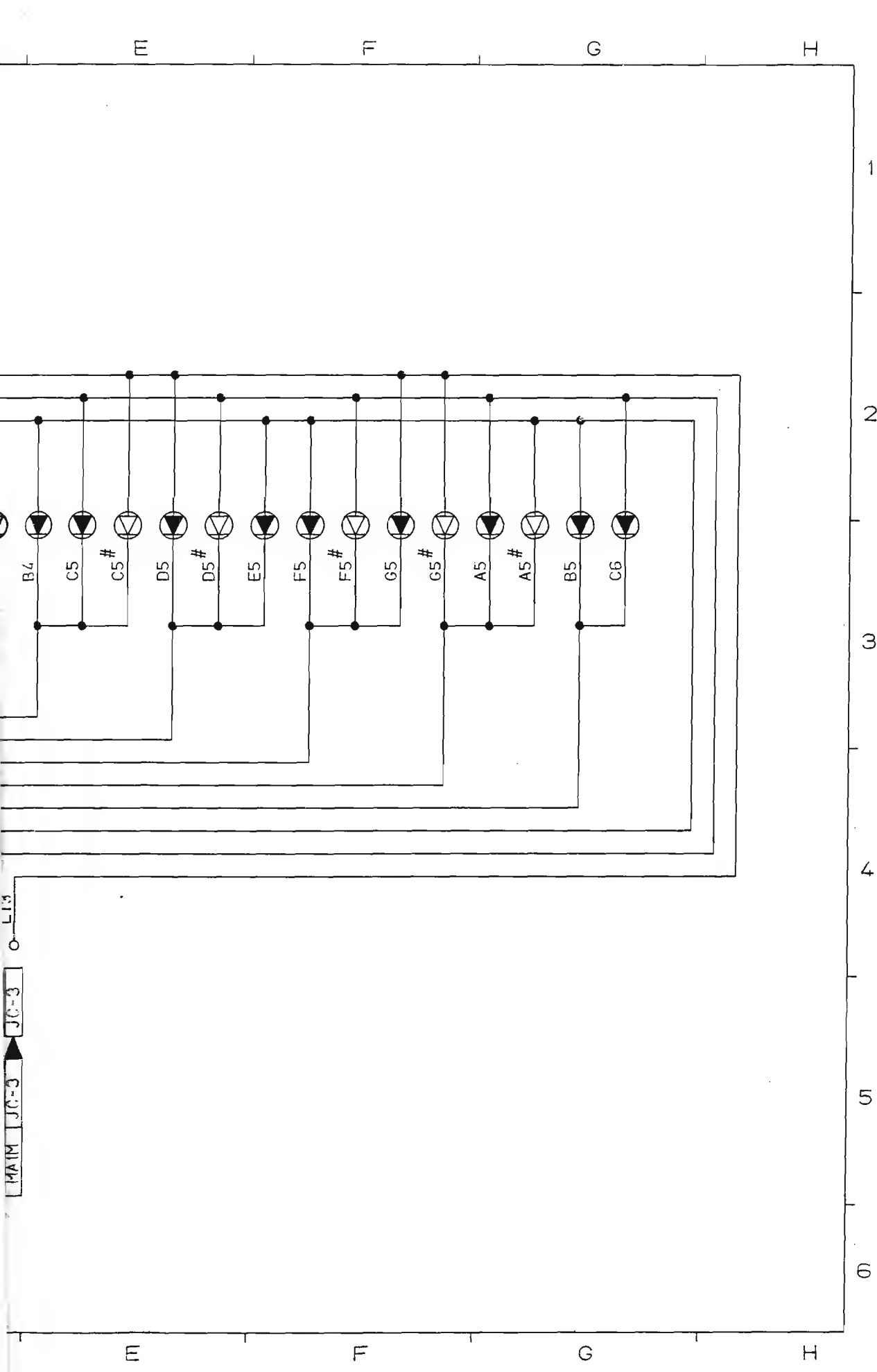


1-3. LED PCB M3123-LD1M

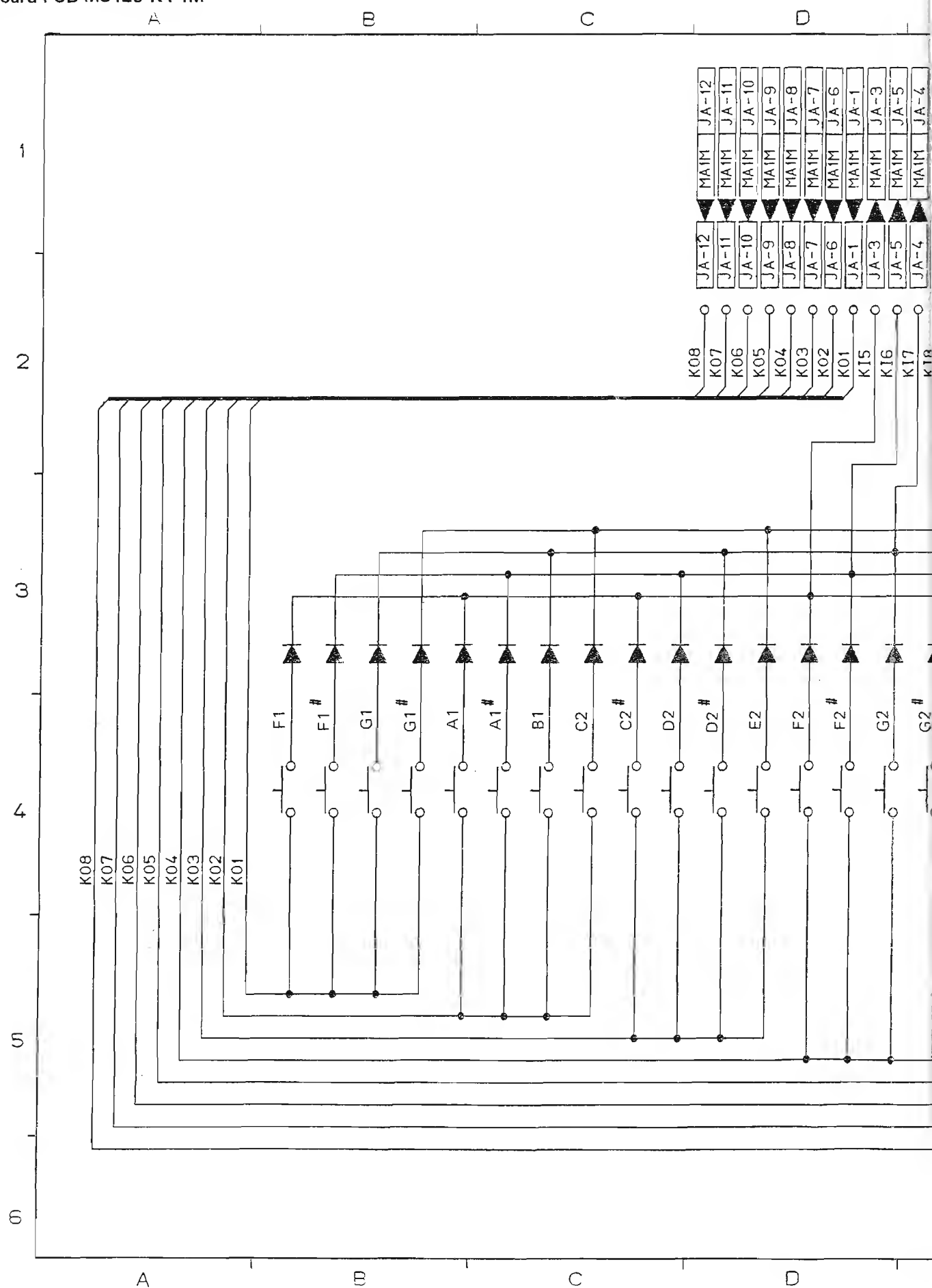


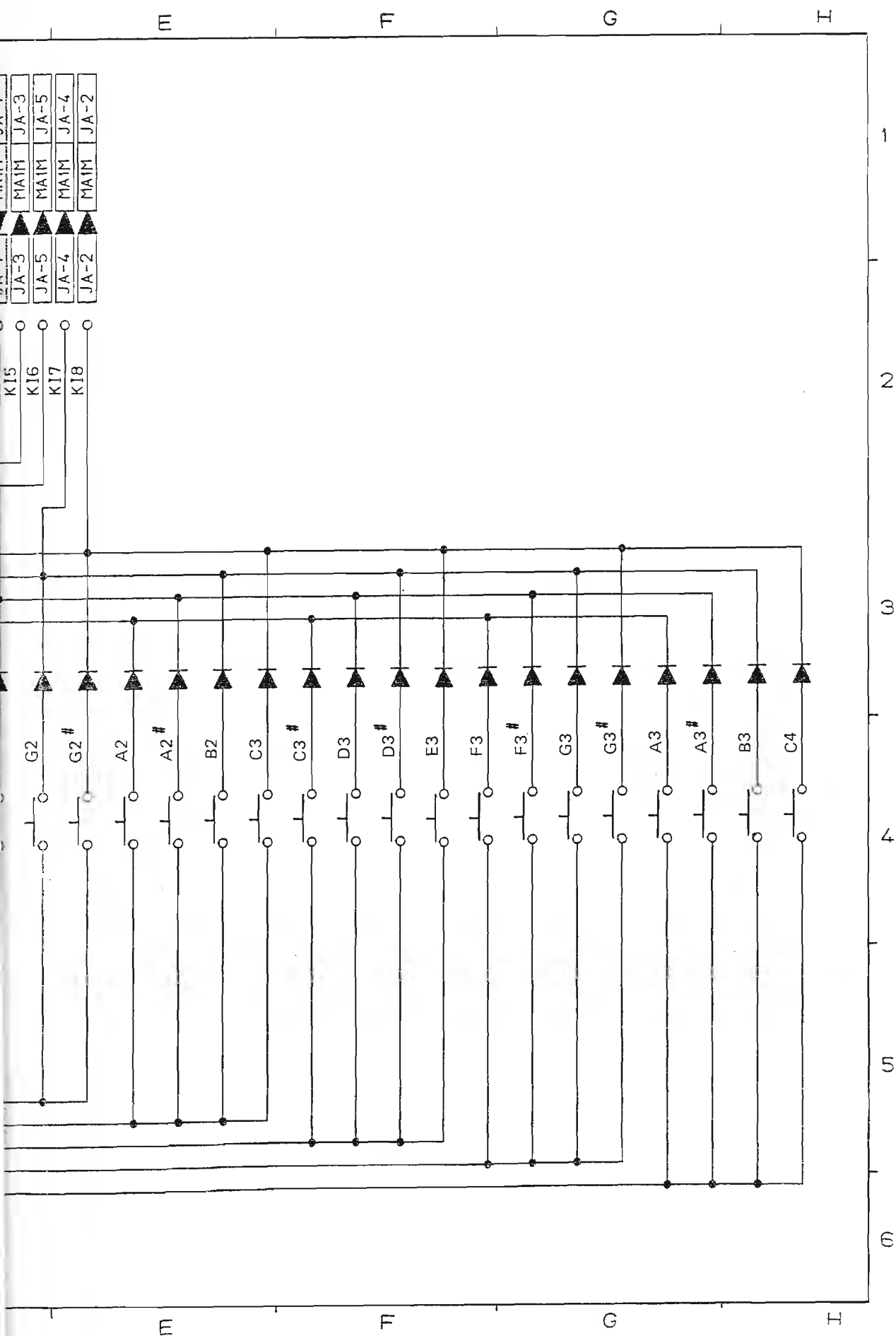
 LN28RPH- (TA2)
 LN38GPH- (TA2)

MAIM	JC-4	JC-4
MAIM	JC-5	JC-5
MAIM	JC-6	JC-6
MAIM	JC-7	JC-7
MAIM	JC-8	JC-8
MAIM	JC-9	JC-9
MAIM	JC-10	JC-10
MAIM	JC-11	JC-11
MAIM	JC-12	JC-12
MAIM	JC-13	JC-13
MAIM	JC-14	JC-14
MAIM	JC-1	JC-1
MAIM	JC-2	JC-2
MAIM	JC-3	JC-3

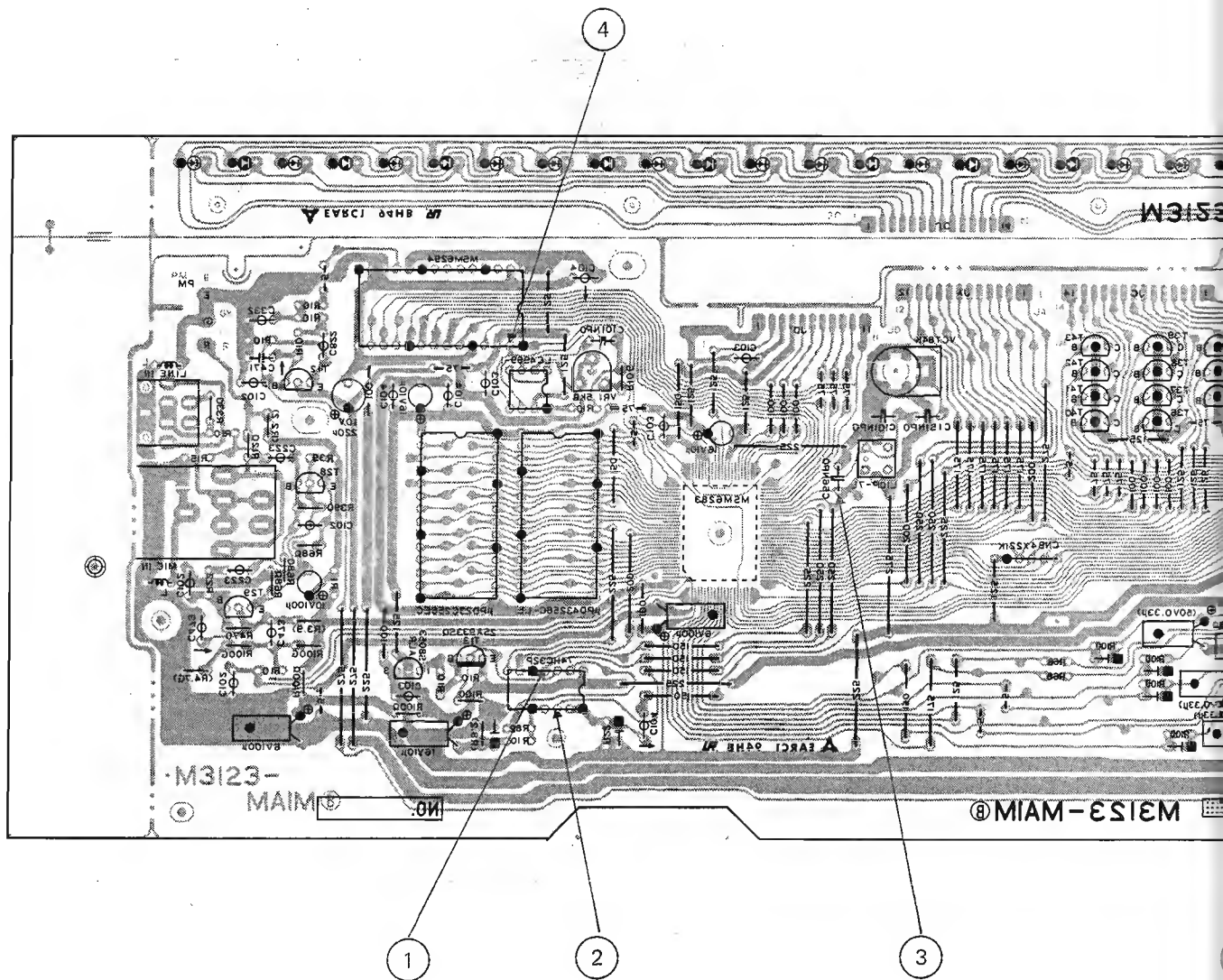


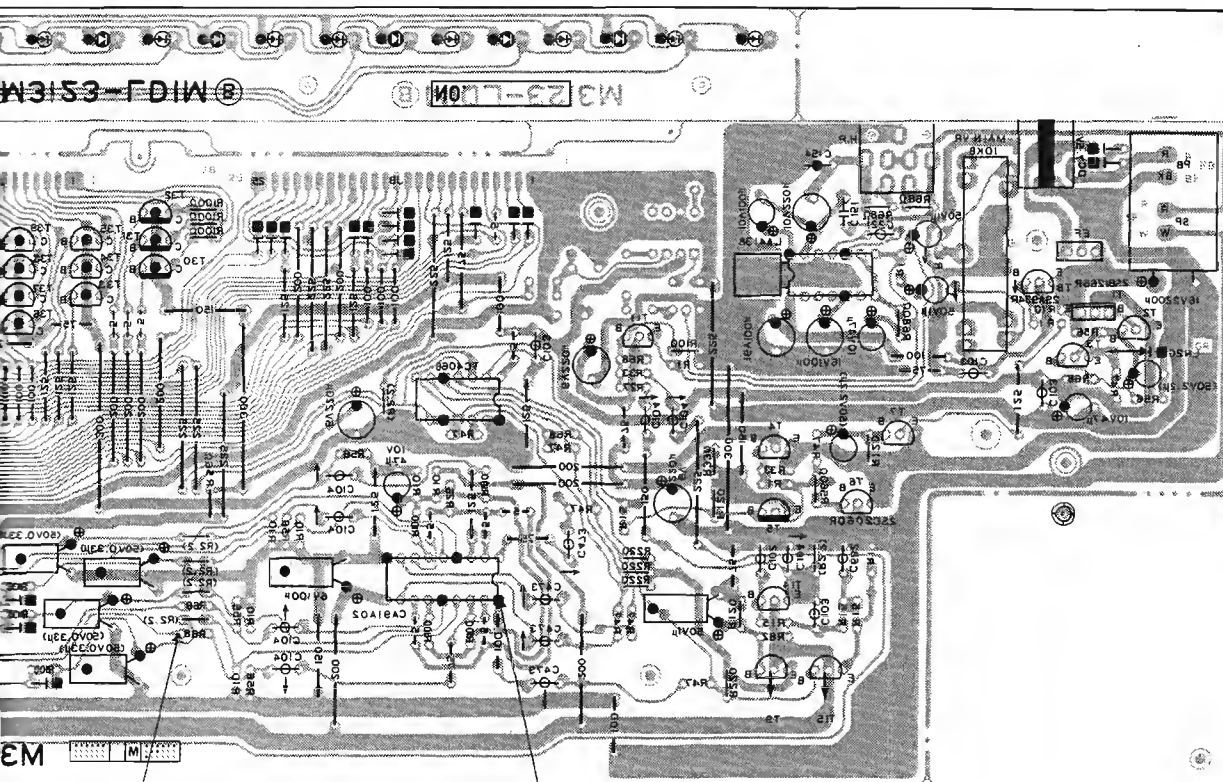
1-4. Keyboard PCB M3129-KY1M





2. PCB VIEW & MAJOR CHECKPOINTS

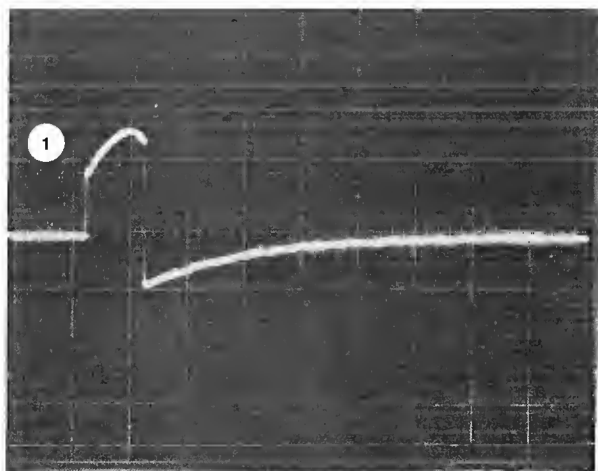




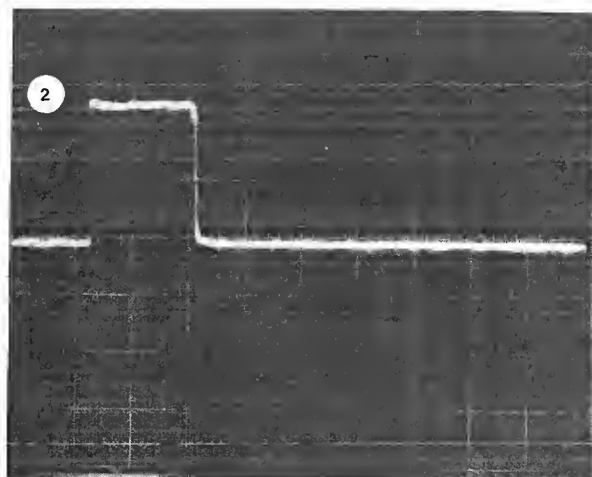
3. MAJOR WAVEFORMS

Notes: Photographs of waveforms have been taken using a memory scope.

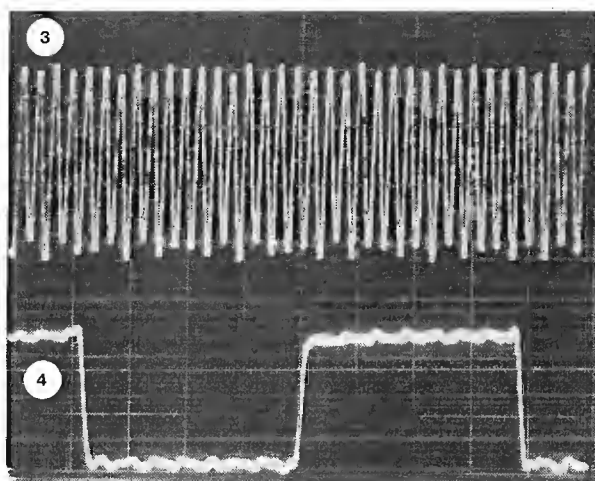
Attenuation Ratio of probes 10:1



① RESET signal
When AC adaptor is inserted
0.2V/div., 0.1 sec/div.

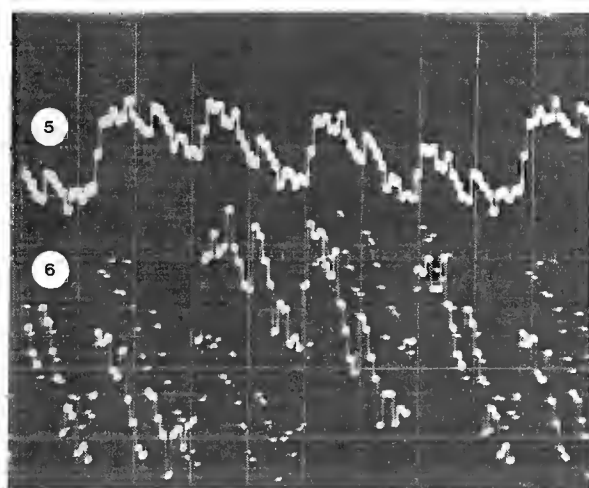


② Signal MI
At Power ON
0.2V/div, 1ms/div



③ CPU clock

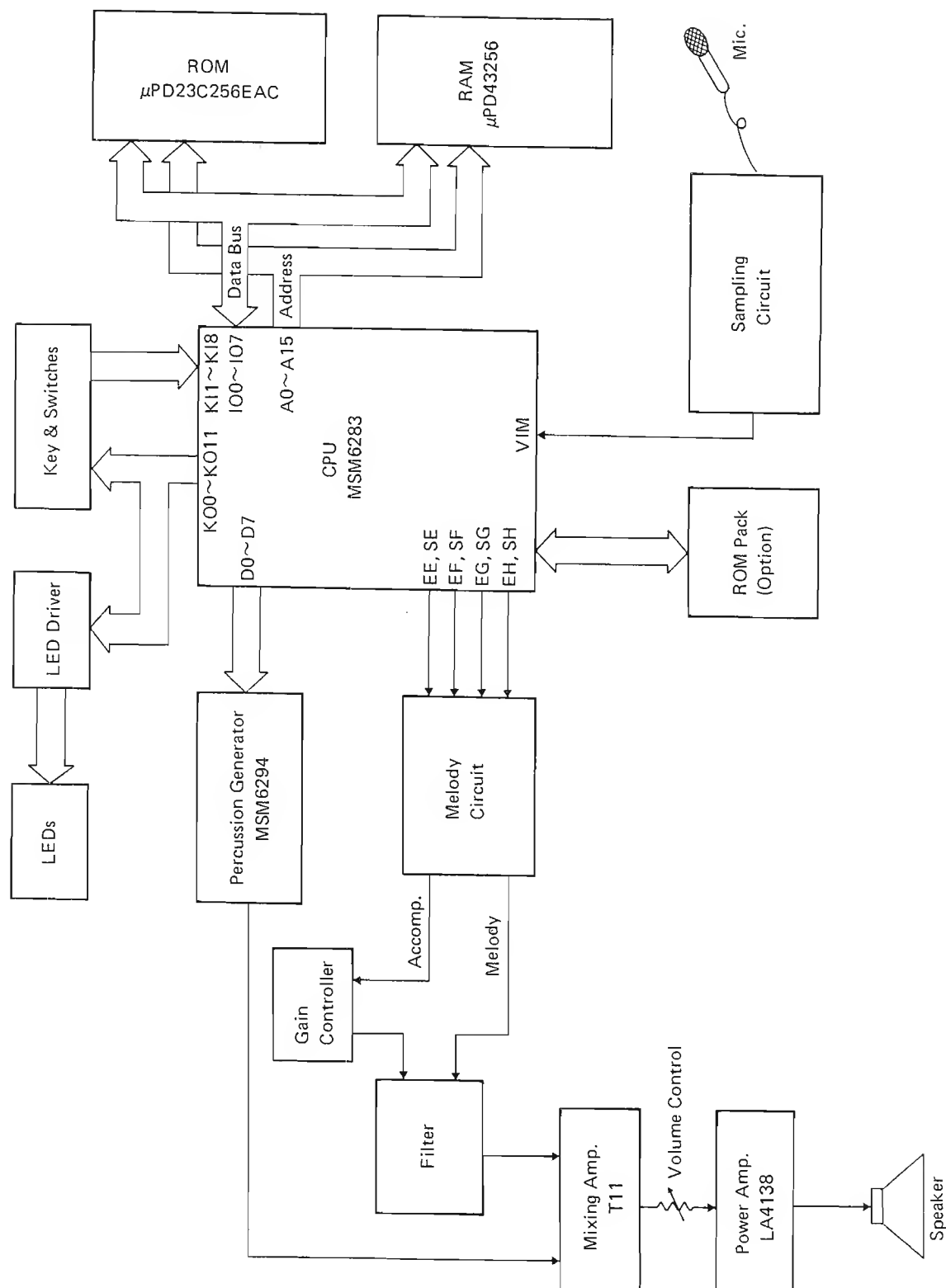
④ Percussion Generator Clock
0.2V/div., 0.5 μ s



⑤ Signal SH

⑥ Melody Circuit Output
Tone: Pipe Organ
Key: C2
50mV/div., 1ms/div.

4. BLOCK DIAGRAM



5. KEY & SWITCH MATRIX

	KI1	KI2	KI3	KI4	KI5	KI6	KI7	KI8
KO0					F1	F#1	G1	G#1
KO1	Piano	Vibra- phone	Guitar	Pipe Org.	A1	A#1	B1	C2
KO2	Trumpet	Violin	Flute	Clarinet	C#2	D2	D#2	E2
KO3	Sample 1	Sample 2	Sample 3	Sample 4	F2	F#2	G2	G#2
KO4	Memory Stop	Memory Start		Edit	A2	A#2	B2	C3
KO5	Sample Normal	Sample Long			C#3	D3	D#3	E3
KO6	Rock 1	Rock 2	Disco 1	Disco 2	F3	F#3	G3	G#3
KO7	16 Beat	March	Bossa Nova	Samba	A3	A#3	B3	C4
KO8	Slow Rock	Waltz			Sample Pad 1	Sample Pad 2	Sample Pad 3	Sample Pad 4
KO9	Play	Record	Demo					Power Off
KO10					Tempo ▼	Tempo ▲	Tune ▼	Tune ▲
KO11		Accomp.	Obbligato	Melody				

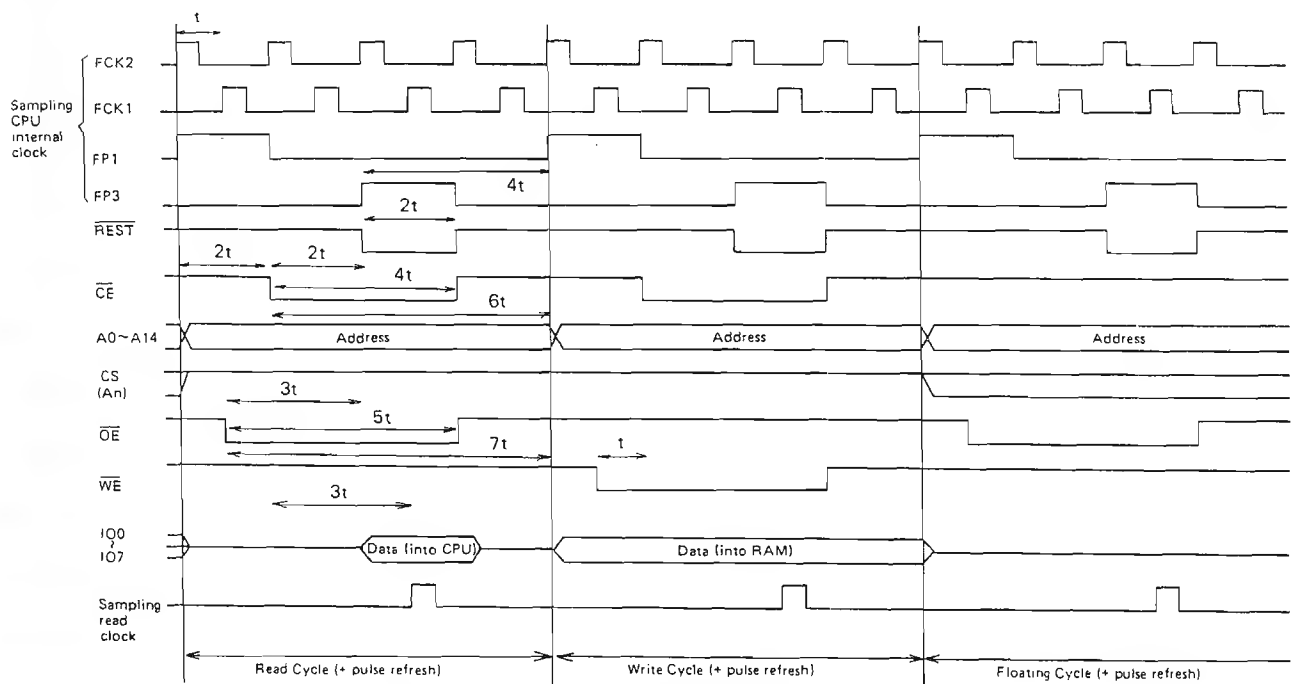
6. CPU (MSM6283-05GS)

- Generates Pitch and Envelope signals for Melody, Chord, Bass and Obbligato sounds.
- Controls Keys, Switches and peripheral devices.

The following table is the pin functions of the CPU.

Pin No.	Terminal Name	In/Out	Function
1	BGND		5V source for internal ADC (Analog to Digital Converter)
2	VADC		Ground (0V) source for internal ADC
3, 4			No function
5 ~ 11	IO0~IO6	In/Out	Data bus (D0 ~ D6)
12	A0	Out	Address bus (A0)
13	IO7	In/Out	Data bus (D7)
14	A1	Out	Address bus (A1)
15	\overline{CE}	Out	Chip enable signal for memory devices. LOW active.
16~18	A2, A10, A3	Out	Address bus (A2, A3, A10)
19			No function
20~29	A4~9, A11~14	Out	Address bus (A4 ~ A9, A11 ~ A14)
30	A15	Out	Output enable signal for memory devices. LOW active.
31	\overline{WE}	Out	Write enable signal for RAM. LOW active.
32~38			No function
39	CE1	Out	Write enable signal for Percussion generator. LOW active.
40	GND		5V source
41	CE2	Out	ROM pack's chip select signal. LOW active.
42			No function
43	VDD1		Ground (0V) source for internal digital circuit
44	VDD2		Ground (0V) source for internal analog circuit
45			No function
46, 47	CP1, CP2	Out	ROM pack's clock pulse
48	OP	Out	ROM pack's data/address change signal. Data bus for ROM pack becomes data or address in accordance with the voltage level of this signal.
49~52	D0 ~ D3	Out	Data bus for Percussion generator.
53~56	D4 ~ D7	Out	Data bus for Percussion generator and data/address bus for ROM pack.
57, 58	OSI, OSO	In/Out	7,277MHz clock pulse input 0 and output
59	MI	In	Power ON detection signal input. HIGH active. Receiving a pulse at Power ON, CPU starts functioning.
60	RESET	In	Reset signal input. HIGH active. The terminal receives a pulse which resets CPU internal circuit when new batteries or AC adaptor is set.
61			No function
62	KO14	Out	Accompaniments' volume control signal.
63	KO13	Out	ROM and RAM chip select signal.

Pin No.	Terminal Name	In/Out	Function
64	KO12	Out	APO (Auto Power Off) signal output. Terminal drops to LOW level to shut the voltages off when the unit is not operated for approximately 00 minutes.
65~76	KO11~KO0	Out	Key common and LED drive signals outputs.
77~84	KI1 ~ KI8	In	Key input signals
85	PO0	Out	Reset signal for Percussion generator. The terminal holds LOW level at power ON for a while during which the internal circuits of the Percussion generator are initialized.
86~88	PO1 ~ PO3	Out	LED common signals output.
89	EH	Out	Melody envelope signal output
90	EG	Out	Melody or obbligato envelope signal output
91	EF	Out	Melody or chord envelope signal output
92	EE	Out	Melody or bass envelope signal output
93	SH	Out	Melody pitch signal output
94	SG	Out	Melody or obbligato pitch signal
95	SF	Out	Melody or chord pitch signal
96	SE	Out	Melody or bass pitch signal
97			No function
98	AGND		+5V source for DAC (Digital to Analog Converter)
99	VDAC		Ground (0V) source for DAC
100	Vin	In	Sampling sound input signal from MIC terminal

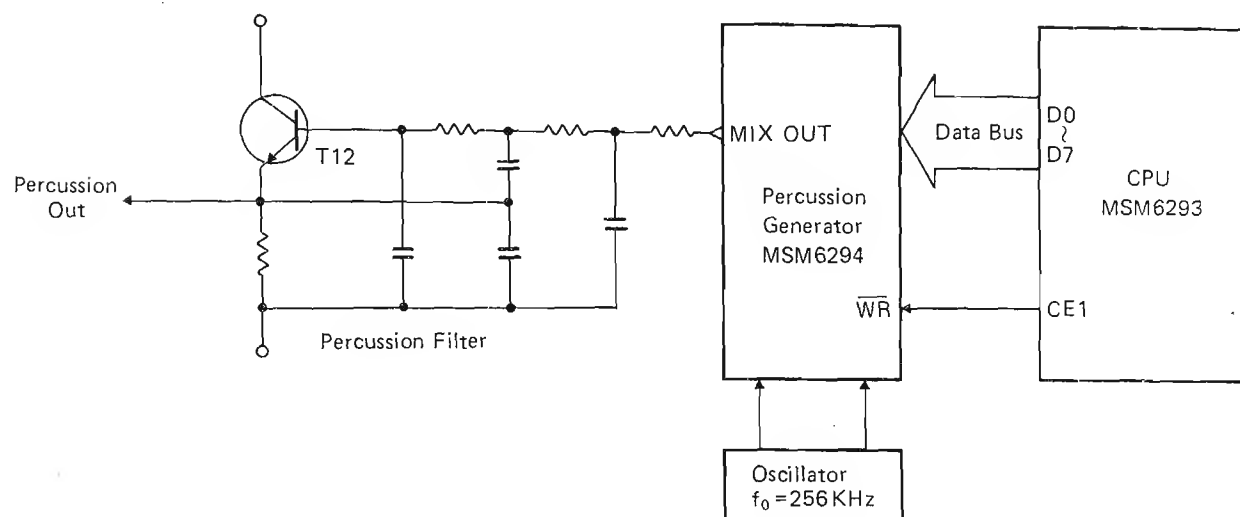


Timing chart of sampling CPU for ROM and RAM

$t = 1/1PG (= 7.802MHz)$

7. PERCUSSION GENERATOR (MSM6294-02)

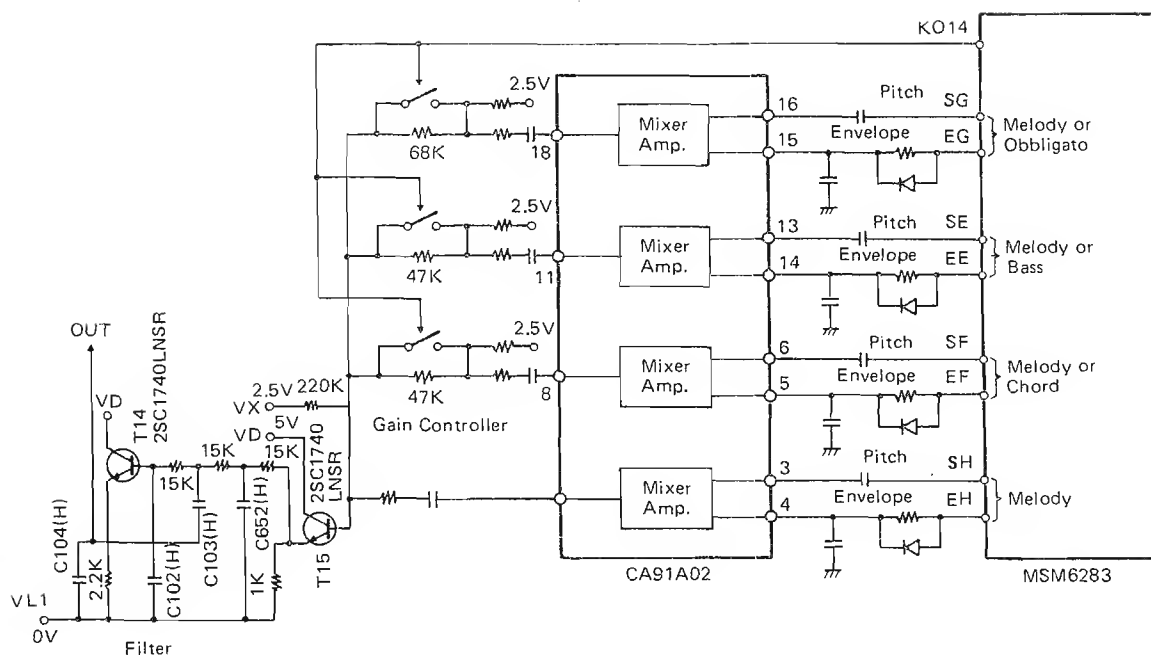
Containing a internal ROM (128 Kbit) for percussion data, and internal 8 bit DAC (Digital to Analog Converter), the LSI provides percussion sounds.



Pin Function of Percussion Generator

Pin No.	Signal	In/Out	Function
1	$\overline{\text{RESET}}$	In	Reset signal input. LOW active. The terminal holds LOW level at power switch on for initializing the internal circuit
2	CLK	In	Clock pulse (256 kHz) input
3			No function
4	$\overline{\text{WR}}$	In	Write signal input. LOW active. The LSI reads the percussion data from the CPU when the terminal is LOW level.
5	CS	In	Chip select signal input, Fixed at LOW level.
6~13	D0 ~ D7	In	Data bus (D0 ~ D7)
14	DVSS		Ground (0V) source for internal digital circuit
15, 16			No function
17	AVSS		Ground (0V) source for internal DAC
18	MIX-O	Out	Analog percussion signal output
19	AVDD		+5V source for internal DAC
20~27			No function
28	DVDD		+5V source for internal digital circuit

8. MELODY CIRCUIT



CPU outputs four each of pitch and envelope signals.

Normally all the signals are for melody sounds however, when a ROM Pack music is played, each pitch and envelope signals become obligato, bass, chord, or melody sounds.

CA91A 02 contains four mixing amplifiers and merges each pitch and envelope signals.

Gain Controller balances the sound volume of melody and accompaniments for ROM Pack musics.

Signal KO14 normally stays HIGH level so that all the switches turn on. When a ROM Pack music is played, KO14 falls to LOW level turning the switches off and all the accompaniment signals are reduced as they pass through the resistors.

9. SAMPLING CIRCUIT

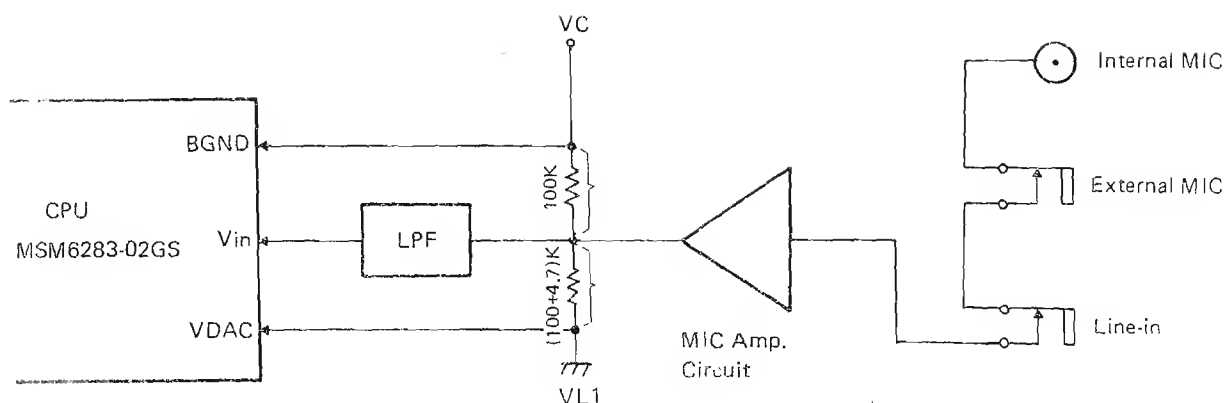


Fig. 1 Sample Sound Input Circuit

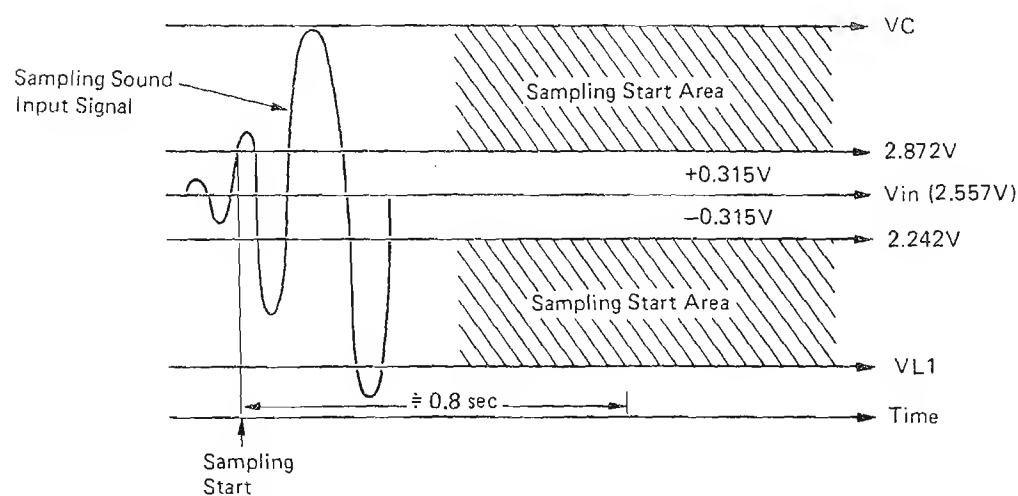


Fig. 2 Vin Input Trigger Level

As shown in Fig. 1, the circuit provides sampling signals to the Vin terminal of the CPU. Resistors 100Kohm and (100 + 4.7) Kohm bias the sampling signal on 2.863V.

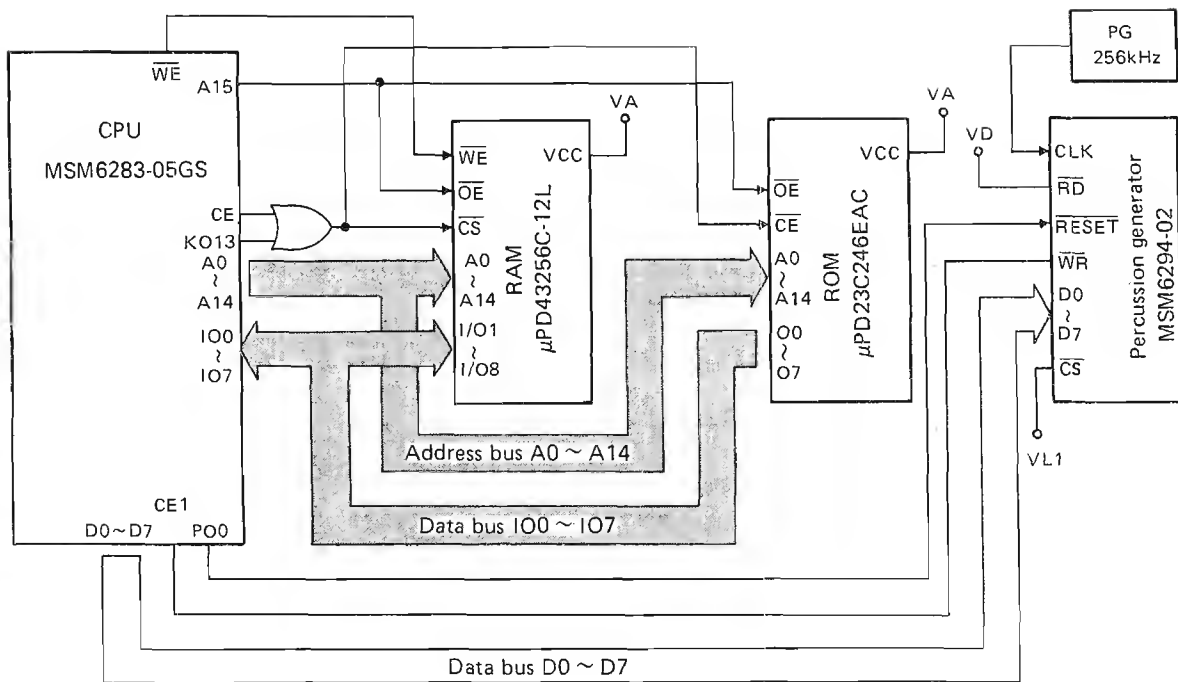
When the sampling sound level exceeds $\pm 0.315V$ as shown in Fig. 2, the CPU starts to transmit the sampling sound data to the RAMs during the following period.

While sampling, the CPU transmits the sampling sound data to the sampling RAMs directly.

While sampling, CPU does not output key common signals (K00 ~ K09) so that the keyboard becomes inoperative.

Sampled sounds are digitized in CPU and transmitted to the RAM.

10. PERIPHERAL DEVICE ACCESS



μPD43256C-12L is a 256Kbit RAM for storing sampling sounds and ROM pack data. The data in RAM are kept even power switch OFF as long as DC7.5V is provided.

μPD23C256EAC is a 256Kbit ROM and contains preset tone, percussion data, and system execution program.

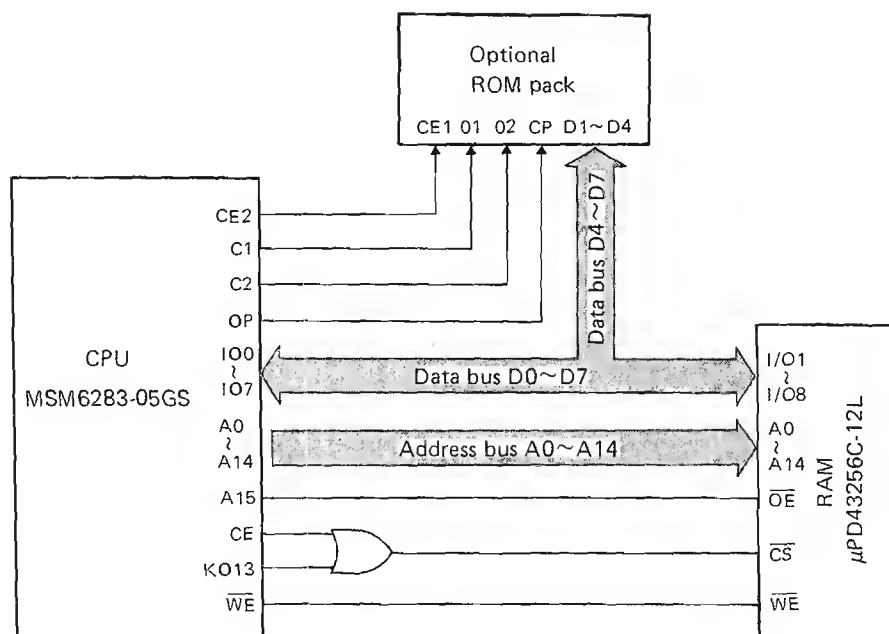
MSM6294-02 is a percussion generator and issues percussion sounds in accordance with the data from CPU.

The chip select condition is as follows.

Ship selection	A15	CE	CE1
RAM	L	L	X
ROM	H	L	X
Percussion generator	X	X	L

H: High level
L: Low level
X: Irrelevant

11. ROM PACK ACCESS

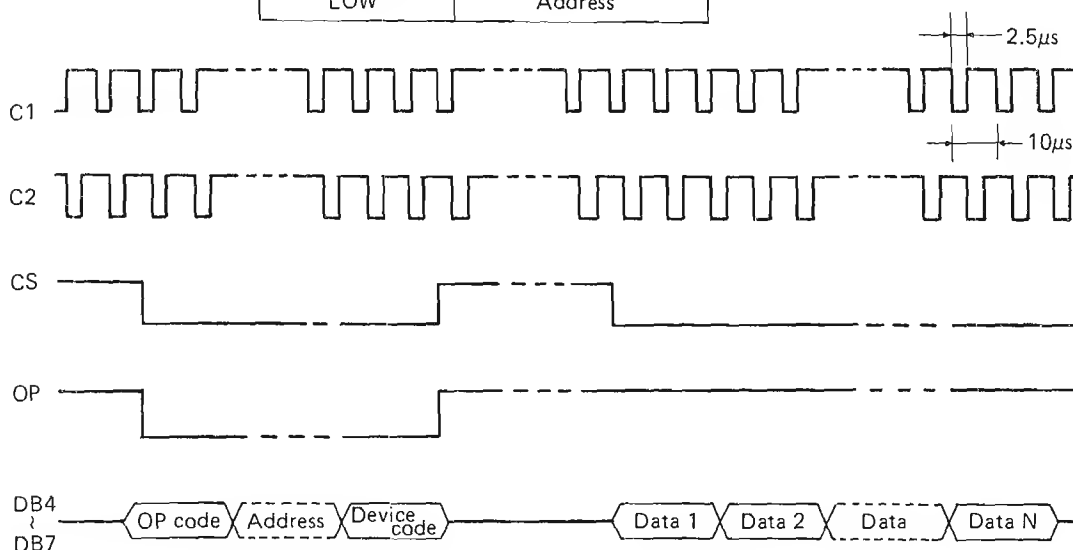


Assigning ROM pack by being LOW of signal CE2, CPU reads data from the ROM directly and generates programmed melody and accompaniment signals.

Since the data bus D4 ~ D7 carries data and address, signal OP determines either the bus carries data or address.

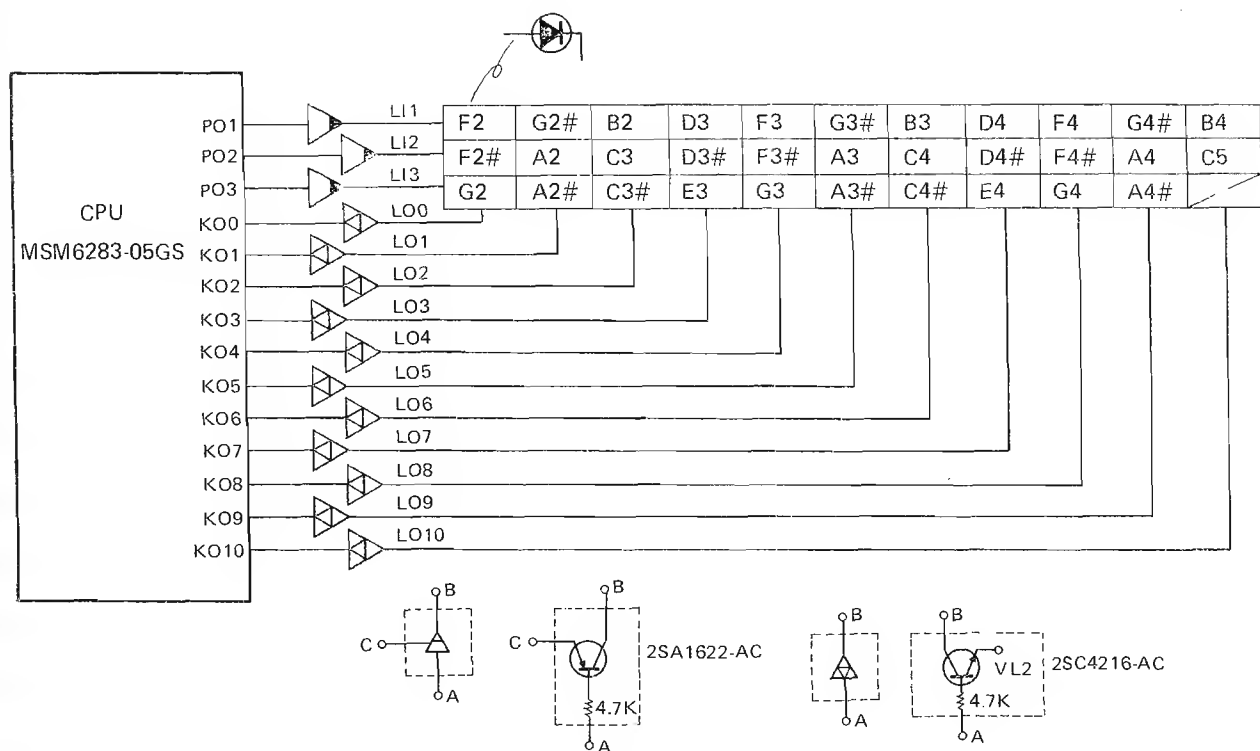
Signal C1 and C2 are clock pulse for data transfer.

OP	D4 ~ D7
HIGH	Data
LOW	Address



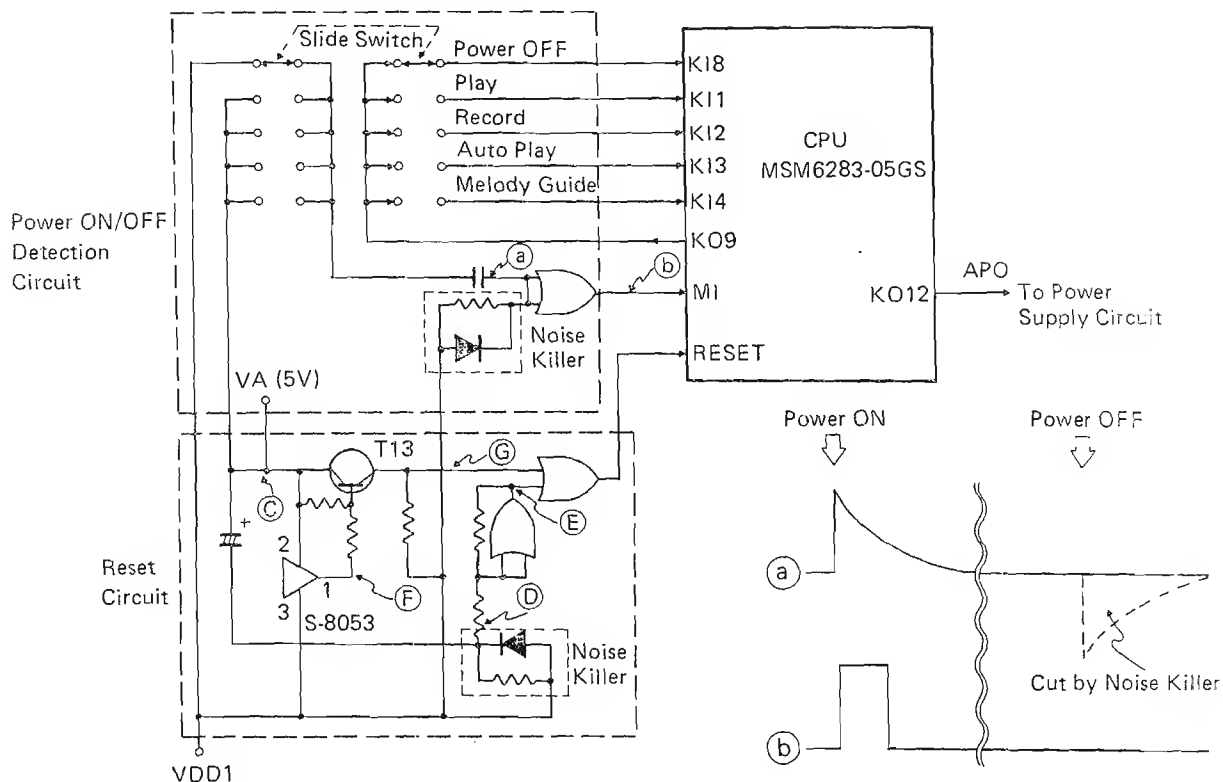
Time Chart of Data Transfer

12. LED DRIVE CIRCUIT



All LEDs are controlled by signal PO1 ~ PO3 and KO0 ~ KO10 of the CPU. For instance, to light the LED G2, CPU falls signal PO3 at the timing of KO0.

13. RESET & POWER ON/OFF DETECTION CIRCUIT

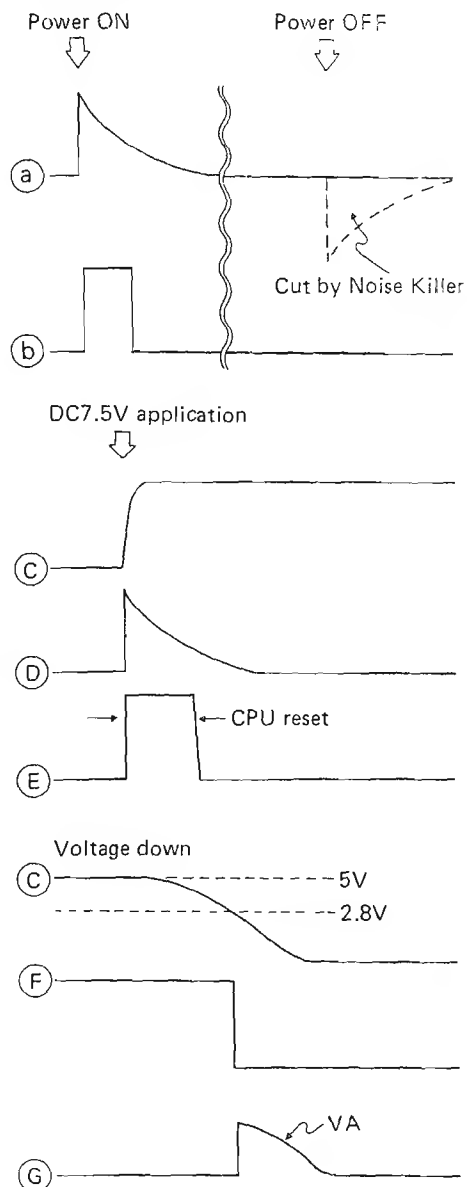
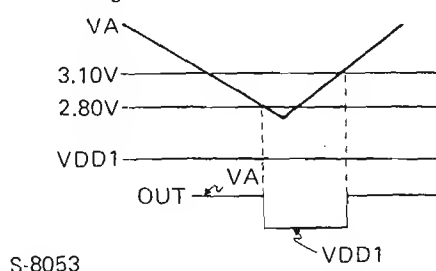
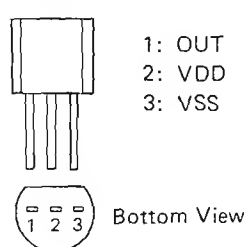


When the power switch is turned on, terminal M1 receives a differential pulse which triggers CPU operation. By receiving signal K09 from K11 ~ K14, or K18 terminal, CPU discriminates the Mode switch position.

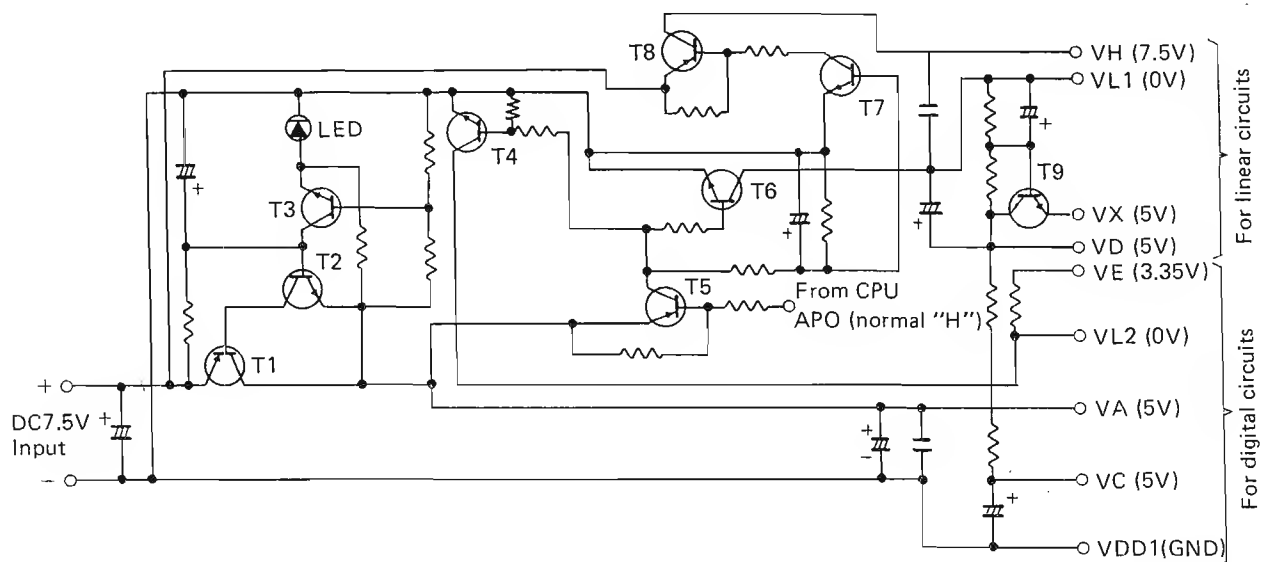
Since VA stays at +5V even power switch is turned off or at the APO (Auto Power Off), the reset signal appears only when new batteries are set or an AC adaptor is inserted.

The noise killer circuit eliminates negative portion of signal M1 at Power OFF.

S-8053 is a voltage detector which observes VA (+5V). When voltage VA becomes less than 2.8V, output pin 1 provides LOW level to turn T13 on. Receiving HIGH level from RESET terminal, CPU stops its functioning.



14. POWER SUPPLY CIRCUIT



The Power Supply Circuit consists of a voltage regulator and an APO (Auto Power Off) circuit. When power is ON and operation is normal, the APO signal from the CPU maintains HIGH level. Transistors T4 ~ T9 turn on providing the voltages to the circuits. The signal APO becomes LOW, when the keyboard is not operated for seven minutes, and transistors T4 ~ T9 turn off causing the voltages except VA to shut off. Voltages VA (5V) and VDD1 (ground) are always provided to the CPU even at APO. Transistors T1, T2 and T3 form a voltage regulator. Using the LED characteristic of current regulation, transistor T3 stabilizes the battery voltage at 5V and the darlington-connected transistor T1 and T2 prevent over current in the circuits.

15. TROUBLESHOOTING

TROUBLE	FAULTY BLOCK	CHECKPOINT
No Power	Power Circuit	Checkpoints' voltages in accordance with the schematic diagram
	Power Switch	Switch contacts and switch spring tension
	Reset Circuit	Waveform ①
	Power ON Detector	Waveform ②
	CPU (MSM6293)	
	Pulse Generator	Waveform ③
	ROM (μ PD23C256EAC)	
No sound at all	Power Circuit	Voltages VA, VX
	Reset Circuit	Waveform ①
	Pulse Generator	Waveform ③
	CPU (MSM6293)	
	ROM (μ PD23C256EAC)	
	Mixing Amp.	Emitter of transistor T11
	Power Amp. (LA4138)	Pin 2
	Speaker	Speaker terminal (red wire)
No melody, chord, bass, and obbligato (percussion sounds)	CA91A02	
	Filter	Emitters of T14 and T15
	CPU (MSM6293)	
	ROM (μ PD23C256EAC)	
No chord, bass, and obbligato	CA91A02	
	Gain Controller	Pin 11 of TC4066
	CPU (μ PD23C256EAC)	
	ROM (μ PD23C256EAC)	
No percussions	Percussion Generator (MSM6294)	Pin 19
	Clock Pulse Generator	Waveform ④
	Percussion Filter	Emitter of T12
	CPU (MSM6293)	
	ROM (μ PD23C256EAC)	
ROM packs cannot be played	ROM Pack	
	RAM (μ PD43256C)	
	CPU (MSM6293)	
	ROM (μ PD23C256EAC)	
Certain keys or switches do not respond	Dirty contacts	
	Broken or poor-soldered PC Joiner	
Sampling impossible	Microphone	
	Sampling Circuit	Collectors of T28 and T29
	CPU (MSM6293)	
	RAM (μ PD43256C)	

PARTS LIST

SK-8

- Notes:
1. Prices and specifications are subject to change without prior notice.
 2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare Parts Supply", published separately.
 3. The numbers in item column correspond to the same numbers in drawing.

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	1) M3123-MA1M PCB ASS'Y						
	2010 0532	LSI (Percussion LSI)	MSM6294-02	1			A
☆	2010 1946	LSI (RAM)	μPD43265C-12L	1			A
☆	2010 2247	LSI (CPU)	MSM6283-05	1			A
☆	2010 2394	LSI (ROM)	μPD23C256EAC-029	1			A
	2101 6039	C-MOS IC	BU4066B	1			A
☆	2105 0392	C-MOS IC	μPD74HC32C	1	10		A
☆	2105 0532	C-MOS IC	LC4969	1	10		A
☆	2114 0252	Monolithic IC	CA91A02	1			A
	2120 8329	Linear IC (Power Amp.)	LA4138	1			A
☆	2251 0119	Transistor	2SB126R, S	1	5		A
	2320 9616	LED	LN2G	1	10		B
	2765 0315	Semi-fixed resistor	V6EK-PVB5K	1	20		B
☆33	2765 0364	Slide VR	EWA-MF0X25B14	1	5		B
☆	2845 0203	Module capacitor	CNB4X221K	1	10		C
34	2898 0021	Trimmer capacitor	VCT84K911A	1	5		B
35	3501 0035	DC jack	HEC2305-01-050	1	10		B
36	3612 0665	Jack	YKB21-5006	1			B
37	3612 0711	Miniature jack	YKB21-5101	2	5		B
	3850 1216	MOS IC	S8053ALR	1			A
	2200 3721	Transistor	2SA933-SQ	2	10		A
	2220 1425	Transistor	2SC1740LNSR-TP-T	11	10		A
☆	2250 0007	Transistor	2SA934R	1	10		A
☆	2220 2632	Transistor	2SC2060R	1	10		A
☆	2250 0231	Digital transistor	2SA1623-AC-T	3	20		A
☆	2252 0245	Digital transistor	2SC4216-AC-T	11	20		A
	2300 2086	Diode	1SS254	20	20		C
☆	2606 0049	Carbon film resistor	R-20-100-G-T24-T (1/5W, 100ohm, ±2%)	2	20		C
☆	2606 0483	Carbon film resistor	R-20-4.7K-G-T24-T (1/5W, 4.7Kohm, ±2%)	1	20		C
☆	2606 0532	Carbon film resistor	R-20-10K-G-T24-T (1/5W, 10Kohm, ±2%)	1	20		C
	2617 0028	Carbon film resistor	R-20-100-J-T24-T (1/5W, 100ohm, ±5%)	4	20		C
	2617 0044	Carbon film resistor	R-20-560-J-T24-T (1/5W, 560ohm, ±5%)	1	20		C
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T (1/5W, 1Kohm, ±5%)	7	20		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

, — Minimum order and supply quantity

Rank A: Essential

B: Stock recommended

C: Others

X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	#	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T (1/5W, 2.2Kohm, ±5%)	7	20		C
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T (1/5W, 10Kohm, ±5%)	17	20		C
	2617 0109	Carbon film resistor	R-20-33K-J-T24-T (1/5W, 33Kohm, ±5%)	2	20		C
	2617 0117	Carbon film resistor	R-20-47K-J-T24-T (1/5W, 47Kohm, ±5%)	5	20		C
	2617 0125	Carbon film resistor	R-20-68K-J-T24-T (1/5W, 68Kohm, ±5%)	7	20		C
	2617 0133	Carbon film resistor	R-20-82K-J-T24-T (1/5W, 82Kohm, ±5%)	2	20		C
	2617 0141	Carbon film resistor	R-20-100K-J-T24-T (1/5W, 100Kohm, ±5%)	14	20		C
	2617 0168	Carbon film resistor	R-20-220K-J-T24-T (1/5W, 220Kohm, ±5%)	4	20		C
	2617 0203	Carbon film resistor	R-20-470K-J-T24-T (1/5W, 470Kohm, ±5%)	1	20		C
	2617 0206	Carbon film resistor	R-20-39K-J-T24-T (1/5W, 39Kohm, ±5%)	1	20		C
	2617 0238	Carbon film resistor	R-20-680-J-T24-T (1/5W, 680ohm, ±5%)	1	20		C
	2617 0246	Carbon film resistor	R-20-12K-J-T24-T (1/5W, 12Kohm, ±5%)	1	20		C
	2617 0262	Carbon film resistor	R-20-120K-J-T24-T (1/5W, 120Kohm, ±5%)	3	20		C
	2617 0289	Carbon film resistor	R-20-15K-J-T24-T (1/5W, 15Kohm, ±5%)	5	20		C
	2617 0297	Carbon film resistor	R-20-22K-J-T24-T (1/5W, 22Kohm, ±5%)	2	20		C
	2617 0301	Carbon film resistor	R-20-56K-J-T24-T (1/5W, 56Kohm, ±5%)	6	20		C
	2617 0335	Carbon film resistor	R-20-56-J-T24-T (1/5W, 56ohm, ±5%)	1	20		C
	2617 0343	Carbon film resistor	R-20-390K-J-T24-T (1/5W, 390Kohm, ±5%)	1	20		C
	2617 0378	Carbon film resistor	R-20-3.9K-J-T24-T (1/5W, 3.9Kohm, ±5%)	1	20		C
	2617 0394	Carbon film resistor	R-20-680K-J-T24-T (1/5W, 680Kohm, ±5%)	1	20		C
	2617 0459	Carbon film resistor	R-20-27K-J-T24-T (1/5W, 27Kohm, ±5%)	1	20		C
	2617 0467	Carbon film resistor	R-20-68-J-T24-T (1/5W, 68ohm, ±5%)	4	20		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

* — Minimum order and supply quantity

Rank

A: Essential

B: Stock recommended

C: Others

X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2617 0491	Carbon film resistor	R-20-330K-J-T24-T (1/5W, 330Kohm, ±5%)	1	20		C
	2617 0505	Carbon film resistor	R-20-33-J-T24-T (1/5W, 33ohm, ±5%)	1	20		C
	2617 0877	Carbon film resistor	R-20-8.2K-J-T24-T (1/5W, 8.2Kohm, ±5%)	1	20		C
☆	2801 7189	Electrolytic capacitor	50RE2-R33-T14-T	4	20		C
	2804 5956	Electrolytic capacitor	50RE2-2R2-T2-T	2	10		C
	2805 3061	Electrolytic capacitor	6.3RE2-220-T2-T	3	10		C
	2805 3100	Electrolytic capacitor	16RE2-10-T14-T	1	10		C
☆	2801 7301	Electrolytic capacitor	6.3RE2-100-F	1	20		C
	2804 4801	Electrolytic capacitor	16RE2200	1	10		C
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	2	20		C
	2307 1082	Electrolytic capacitor	16RE2-100-T2-T	2	10		C
	2807 1104	Electrolytic capacitor	6.3RE2-100-T14-T	1	20		C
	2807 1112	Electrolytic capacitor	10RE2-100-T2-T	2	20		C
	2807 1121	Electrolytic capacitor	10RE2-220-T2-T	2	20		C
	2807 1155	Electrolytic capacitor	50RE2-1-T14-T	3	20		C
	2807 1180	Electrolytic capacitor	10RE2-47-T2-T	3	20		C
	2813 0245	Semi conductive capacitor	RT-C50TKYR103K-T	9	20		C
☆	2813 0294	Semi conductive capacitor	RT-C60TKYR223K-T	2	20		C
	2813 0525	Semi conductive capacitor	RT-C50TKYR682K-T	1	20		C
	2813 0560	Semi conductive capacitor	DD408SR104K16-T	11	20		C
☆	2813 0644	Semi conductive capacitor	RT-C40TKYR102K-T	5	20		C
☆	2813 0651	Semi conductive capacitor	RT-C40TKYR332K-T	1	20		C
☆	2813 0658	Semi conductive capacitor	RT-C50TKYR822K-T	1	20		C
	2818 2164	Ceramic capacitor	RT-HE90TKCH151J-T	1	10		C
	2818 3241	Ceramic capacitor	RT-HE80TKCH101J-T	2	10		C
☆	2818 3330	Ceramic capacitor	RT-HE60TKCH560J-T	1	20		C
	2819 0379	Ceramic capacitor	RT-HE40TKYB151K-T	1	10		C
	2819 0450	Ceramic capacitor	RT-HE70TKSL221K-T	1	10		C
	2819 C565	Ceramic capacitor	RT-HE90TKSL471K-T	1	10		C
☆	2819 5362	Semi-fixed capacitor	DD406SR473K16-T	6	20		C
	2830 6211	Mylar capacitor	AMZV-154K50-T	1	10		C
38	3841 0007	Coil	L10P-7L	1	10		B
☆	4307 7380	Blank PCB M3123-MA1M	M11249-1	1			X

Note: ☆ -- New parts
Q'ty -- Quantity used per unit
* -- Minimum order and supply quantity

Rank A: Essential
B: Stock recommended
C: Others
X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2) M3123-CN1M PCB ASS'Y						
	2301 0097	Diode	1S2473	6	20		C
39	2320 9764	LED	LN251RPP.WE	1	10		B
☆	3725 0854	PC joiner M123B	JFF00-25-60M	1	10		B
☆	4307 7390	Blank PCB M3123-CN1M	M11250-1	1			X
	3) M3123-CN2 PCB ASS'Y						
☆	3725 0861	PC joiner M123D	JFF00-11-115	1	10		B
☆	4307 7400	Blank PCB M3123-CN2	M43274-1	1	10		X
	4) M3123-LD1M PCB ASS'Y						
☆	2320 9756	LED	LN38GPH	13	20		B
☆	2320 9748	LED	LN28RPH	19	20		B
☆	3725 0847	PC joiner M123C	JFF00-14-100	1	10		B
☆	4307 7450	Blank PCB M3123-LD1M	M11249-2	1	10		X
	5) M3129-KY1M PCB ASS'Y						
	2300 2086	Diode	1SS254	32	20		C
☆	3725 0868	PC joiner M123A	JFF00-12-125M	1	10		B
☆	4307 5041	Blank PCB M3129-KY1M	M21332A-1	1			X
	6) M64-1 PCB ASS'Y						
☆	2010 0714	LSI	MSM-5268-50GK-K	1			A
	2818 2040	Ceramic capacitor	HE70JYF103Z	1	20		C
☆	4307 2131	Blank PCB M64-1	M41686A-1	1	10		X
	7) UPPER CASE ASS'Y						
1	3831 0070	Speaker	EAS-8P109T	1			B
☆2	6909 5180	Slide VR knob	M32610-1	1	20		B
☆3	6909 5210	Contact rubber 121A	M43215-1	1	20		B
☆4	6909 5220	Contact rubber 121B	M43216-1	2	10		B
☆5	6909 5230	Contact rubber 121C	M43217-1	1	10		B
☆6	6909 5240	Contact rubber 121D	M43218-1	1	10		B
☆7	6909 5252	DS contact rubber 121	M32611B-1	1			B
☆8	6909 5260	SA rubber button	M32612-1	1	10		C

Note: ☆ — New parts
Q'ty — Quantity used per unit
* — Minimum order and supply quantity

Rank A: Essential
B: Stock recommended
C: Others
X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
☆ 9	6909 5270	CN spacer A	M43220-1	1	20		C
☆10	6909 5880	SL contact 12S	CSB-12S	1	10		B
☆11	6909 5890	SL contact 12D	CSB-12D	1	10		B
12	6909 5341	Upper case sub ass'y	M21704A*2	1			C
☆26	6910 0140	Blind	M4499-1	1	20		X
☆27	6907 0270	NM stopper B32	M42611-1	1	10		C
☆28	6908 6071	NM stopper A32	M32043A-2	1	10		C
8) MIC 129 ASS'Y							
13	3830 9021	Condenser microphone	WM-034CY	1			B
14	6907 0321	Sponge	M42612A-1	1	20		X
9) KEYBOARD ASS'Y							
15	6907 0150	White key set NW	M1843-1	1			C
16	6907 0160	Black key set NW	M1844-1	1			C
17	6907 0300	Contact rubber NW	M31953-1	1			B
18	6907 4551	Shield plate 129A	M21391A-1	1			X
☆19	6909 5350	LED panel	M21668-2	1			C
20	6911 7552	Pack cover	M31665B-1	1			C
21	6912 1182	Cover spring	M42359B-1	1	50		C
22	6902 6261	Stopper rubber 90	M41213A-1	1	10		C
10) BUTTON SET							
☆23	6909 5200	Button set 123	M32677*1	1			C
11) LOWER CASE ASS'Y							
☆24	6905 8343	Battery cover sub ass'y	M31417C*8	1	10		C
☆25	6909 5171	Lower case sub ass'y	M2836*66	1			C
☆29	6909 6720	Shield plate 121A	M21733-1	1	5		X
30	6902 6690	Rubber foot A	M41361-1	4	10		C
31	6912 2630	Battery spring 120	M42382-1	1	20		C
32	6345 2238	Battery spring G55	A42606A-1	1	10		C
12) OPTION ROM PACK							
	6902 0002	Inter connector	M4950B-1	1			C
	6903 5301	Decorative panel	M41672A-1	1			C
	6905 3330	Earth contact B	M42470-1	1	20		C
	6905 3340	Earth spring B	M42469-1	1	20		C
☆	6909 9070	Label	LABEL 555A	1	20		C
	6903 5312	ROM pack case	M41716B*1				C

Note: ☆ - New parts

Q'ty - Quantity used per unit

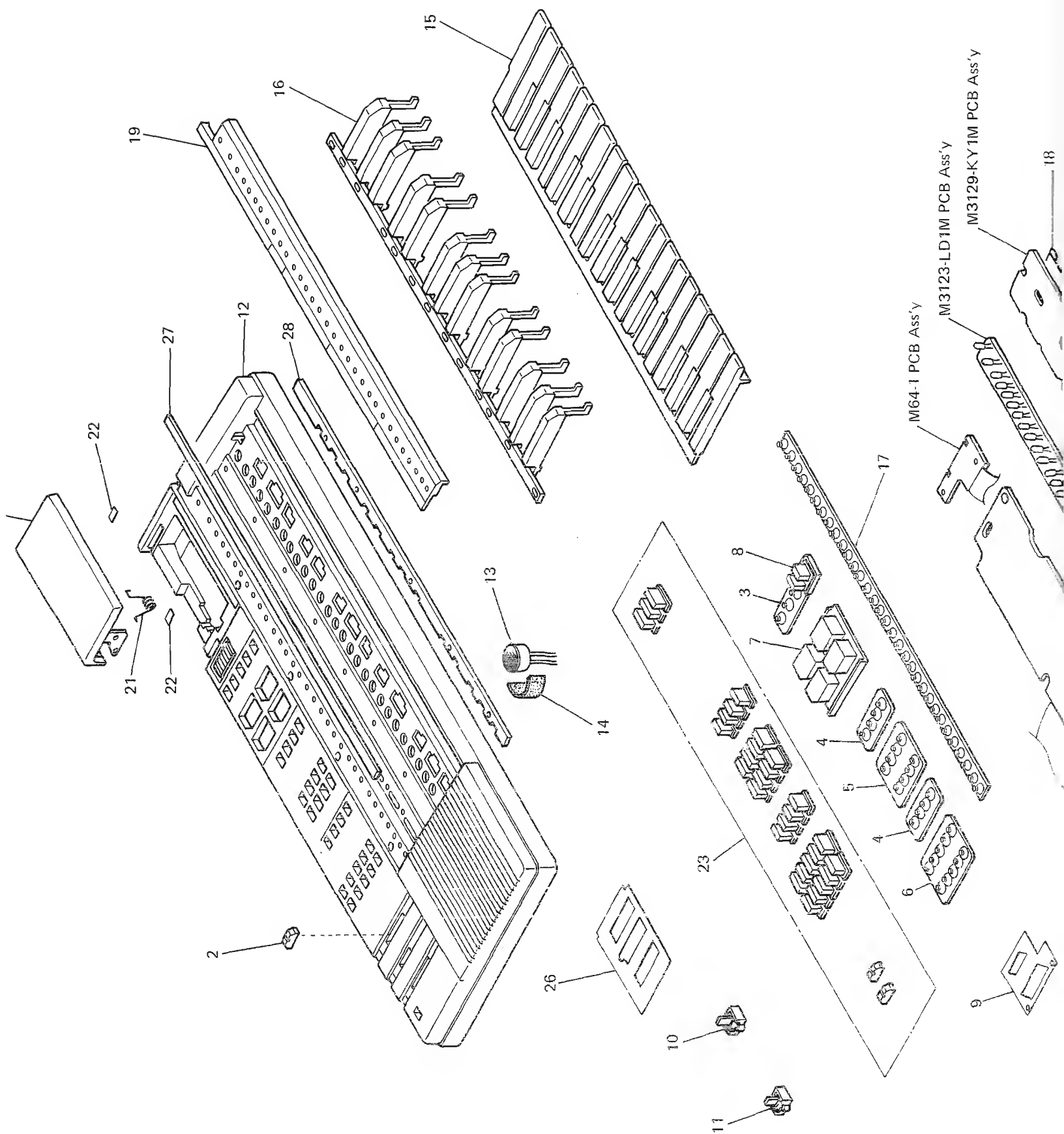
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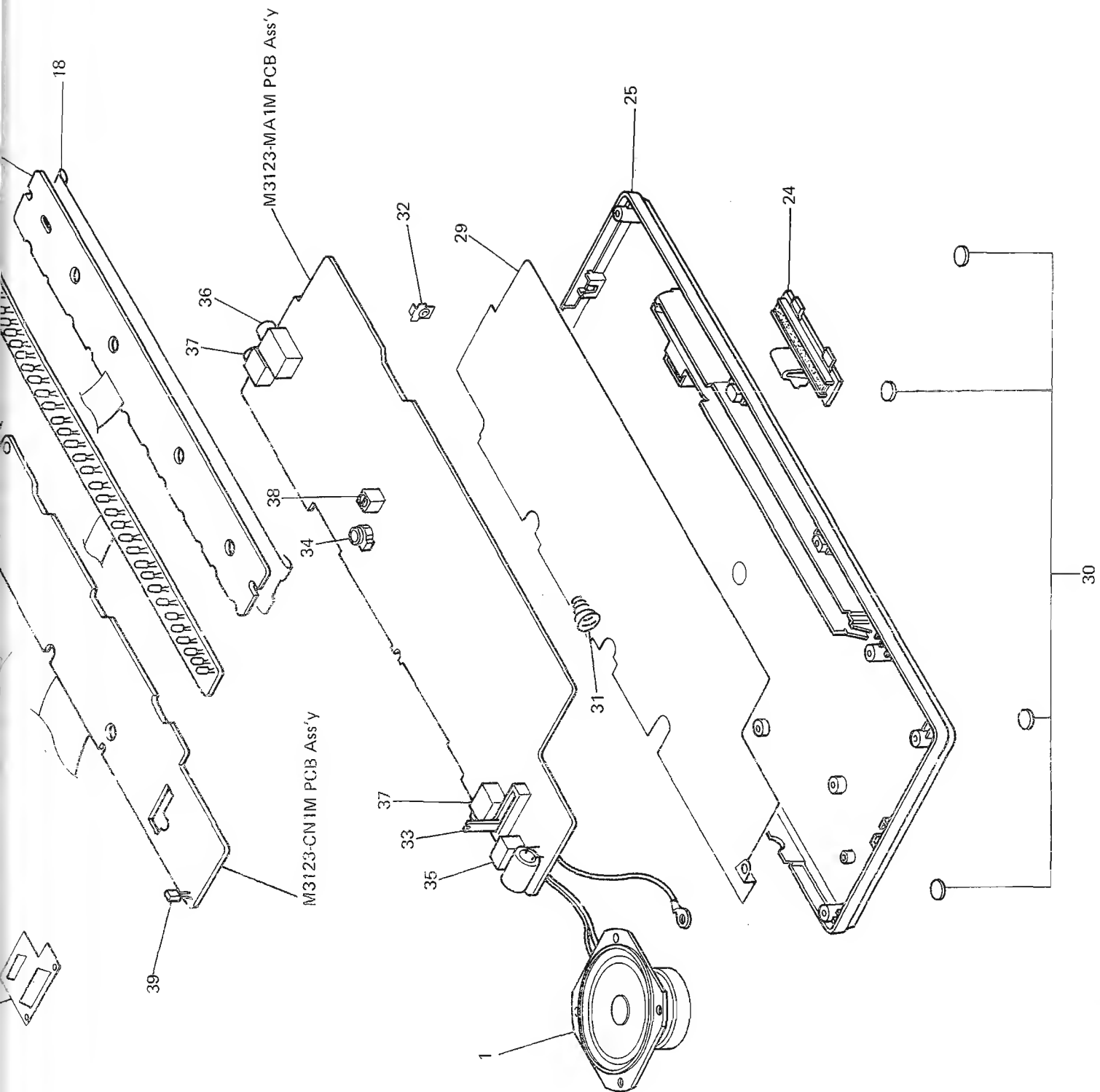
Rank A: Essential

B: Stock recommended

C: Others

X: No stock recommended





PARTS LIST

SK-8A

- Notes:
1. Prices and specifications are subject to change without prior notice.
 2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare Parts Supply", published separately.
 3. The numbers in item column correspond to the same numbers in drawing.

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	1) M3123-MA1M PCB ASS'Y						
	2010 0532	LSI (Percussion LSI)	MSM6294-02	1			A
☆	2010 1946	LSI (RAM)	μPD43265C-12L	1			A
☆	2010 2247	LSI (CPU)	MSM6283-05	1			A
☆	2010 2401	LSI (ROM)	μPD23C256EAC-030	1			A
	2101 6039	C-MOS IC	BU4066B	1			A
☆	2105 0392	C-MOS IC	μPD74HC32C	1	10		A
☆	2105 0532	C-MOS IC	LC4969	1	10		A
☆	2114 0252	Monolithic IC	CA91A02	1			A
	2120 8329	Linear IC (Power Amp.)	LA4138	1			A
☆	2251 0119	Transistor	2SB126R, S	1	5		A
	2320 9616	LED	LN2G	1	10		A
	2765 0315	Semi-fixed resistor	V6EK-PVB5K	1	20		B
☆33	2765 0364	Slide VR	EWA-MF0X25B14	1	5		B
☆	2845 0203	Module capacitor	CNB4X221K	1	10		C
34	2898 0021	Trimmer capacitor	VCT84K911A	1	5		B
35	3501 0035	DC jack	HEC2305-01-050	1	10		B
36	3612 0665	Jack	YKB21-5006	1			B
37	3612 0711	Miniature jack	YKB21-5101	2	5		B
	3850 1216	MOS IC	S8053ALR	1			A
	2200 3721	Transistor	2SA933-SQ	2	10		A
	2220 1425	Transistor	2SC1740LNSR-TP-T	11	10		A
☆	2250 0007	Transistor	2SA934R	1	10		A
☆	2220 2632	Transistor	2SC2060R	1	10		A
☆	2250 0231	Digital transistor	2SA1623-AC-T	3	20		A
☆	2252 0245	Digital transistor	2SC4216-AC-T	11	20		A
	2300 2086	Diode	1SS254	20	20		C
☆	2606 0049	Carbon film resistor	R-20-100-G-T24-T (1/5W, 100ohm, ±2%)	2	20		C
☆	2606 0483	Carbon film resistor	R-20-4.7K-G-T24-T (1/5W, 4.7Kohm, ±2%)	1	20		C
☆	2606 0532	Carbon film resistor	R-20-10K-G-T24-T (1/5W, 10Kohm, ±2%)	1	20		C
	2617 0028	Carbon film resistor	R-20-100-J-T24-T (1/5W, 100ohm, ±5%)	4	20		C
	2617 0044	Carbon film resistor	R-20-560-J-T24-T (1/5W, 560ohm, ±5%)	1	20		C
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T (1/5W, 1Kohm, ±5%)	7	20		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

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Rank

A: Essential

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Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T (1/5W, 2.2Kohm, ±5%)	7	20		C
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T (1/5W, 10Kohm, ±5%)	17	20		C
	2617 0109	Carbon film resistor	R-20-33K-J-T24-T (1/5W, 33Kohm, ±5%)	2	20		C
	2617 0117	Carbon film resistor	R-20-47K-J-T24-T (1/5W, 47Kohm, ±5%)	8	20		C
	2617 0125	Carbon film resistor	R-20-68K-J-T24-T (1/5W, 68Kohm, ±5%)	7	20		C
	2617 0133	Carbon film resistor	R-20-82K-J-T24-T (1/5W, 82Kohm, ±5%)	2	20		C
	2617 0141	Carbon film resistor	R-20-100K-J-T24-T (1/5W, 100Kohm, ±5%)	14	20		C
	2617 0168	Carbon film resistor	R-20-220K-J-T24-T (1/5W, 220Kohm, ±5%)	4	20		C
	2617 0203	Carbon film resistor	R-20-470K-J-T24-T (1/5W, 470Kohm, ±5%)	1	20		C
	2617 0206	Carbon film resistor	R-20-39K-J-T24-T (1/5W, 39Kohm, ±5%)	1	20		C
	2617 0238	Carbon film resistor	R-20-680-J-T24-T (1/5W, 680ohm, ±5%)	1	20		C
	2617 0246	Carbon film resistor	R-20-12K-J-T24-T (1/5W, 12Kohm, ±5%)	1	20		C
	2617 0262	Carbon film resistor	R-20-120K-J-T24-T (1/5W, 120Kohm, ±5%)	3	20		C
	2617 0289	Carbon film resistor	R-20-15K-J-T24-T (1/5W, 15Kohm, ±5%)	5	20		C
	2617 0297	Carbon film resistor	R-20-22K-J-T24-T (1/5W, 22Kohm, ±5%)	2	20		C
	2617 0301	Carbon film resistor	R-20-56K-J-T24-T (1/5W, 56Kohm, ±5%)	6	20		C
	2617 0335	Carbon film resistor	R-20-56-J-T24-T (1/5W, 56ohm, ±5%)	1	20		C
	2617 0343	Carbon film resistor	R-20-390K-J-T24-T (1/5W, 390Kohm, ±5%)	1	20		C
	2617 0378	Carbon film resistor	R-20-3.9K-J-T24-T (1/5W, 3.9Kohm, ±5%)	1	20		C
	2617 0394	Carbon film resistor	R-20-680K-J-T24-T (1/5W, 680Kohm, ±5%)	1	20		C
	2617 0459	Carbon film resistor	R-20-27K-J-T24-T (1/5W, 27Kohm, ±5%)	1	20		C
	2617 0467	Carbon film resistor	R-20-68-J-T24-T (1/5W, 68ohm, ±5%)	4	20		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

* — Minimum order and supply quantity

Rank

A: Essential

B: Stock recommended

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X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2617 0491	Carbon film resistor	R-20-330K-J-T24-T (1/5W, 330Kohm, ±5%)	1	20		C
	2617 0505	Carbon film resistor	R-20-33-J-T24-T (1/5W, 33ohm, ±5%)	1	20		C
	2617 0877	Carbon film resistor	R-20-8.2K-J-T24-T (1/5W, 8.2Kohm, ±5%)	1	20		C
☆	2801 7189	Electrolytic capacitor	50RE2-R33-T14-T	4	20		C
	2804 5956	Electrolytic capacitor	50RE2-2R2-T2-T	2	10		C
	2805 3061	Electrolytic capacitor	6.3RE2-220-T2-T	3	10		C
	2805 3100	Electrolytic capacitor	16RE2-10-T14-T	1	10		C
☆	2801 7301	Electrolytic capacitor	6.3RE2-100-F	1	20		C
	2804 4801	Electrolytic capacitor	16RE2200	1	10		C
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	2	20		C
	2807 1082	Electrolytic capacitor	16RE2-100-T2-T	2	10		C
	2807 1104	Electrolytic capacitor	6.3RE2-100-T14-T	1	20		C
	2807 1112	Electrolytic capacitor	10RE2-100-T2-T	2	20		C
	2807 1121	Electrolytic capacitor	10RE2-220-T2-T	2	20		C
	2807 1155	Electrolytic capacitor	50RE2-1-T14-T	3	20		C
	2807 1180	Electrolytic capacitor	10RE2-47-T2-T	3	20		C
	2813 0245	Semi conductive capacitor	RT-C50TKYR103K-T	9	20		C
☆	2813 0294	Semi conductive capacitor	RT-C60TKYR223K-T	2	20		C
	2813 0525	Semi conductive capacitor	RT-C50TKYR682K-T	1	20		C
	2813 0560	Semi conductive capacitor	DD408SR104K16-T	11	20		C
☆	2813 0644	Semi conductive capacitor	RT-C40TKYR102K-T	5	20		C
☆	2813 0651	Semi conductive capacitor	RT-C40TKYR332K-T	1	20		C
☆	2813 0658	Semi conductive capacitor	RT-C50TKYR822K-T	1	20		C
	2818 2164	Ceramic capacitor	RT-HE90TKCH151J-T	1	10		C
	2818 3241	Ceramic capacitor	RT-HE80TKCH101J-T	2	10		C
☆	2818 3330	Ceramic capacitor	RT-HE60TKCH560J-T	1	20		C
	2819 0379	Ceramic capacitor	RT-HE40TKYB151K-T	1	10		C
	2819 0450	Ceramic capacitor	RT-HE70TKSL221K-T	1	10		C
	2819 0565	Ceramic capacitor	RT-HE90TKSL471K-T	1	10		C
☆	2819 5362	Semi-fixed capacitor	DD406SR473K16-T	6	20		C
	2830 6211	Mylar capacitor	AMZV-154K50-T	1	10		C
38	3841 0007	Coil	L10P-7L	1	10		B
☆	4307 7380	Blank PCB M3123-MA1M	M11249-1	1			X

Note: ☆ — New parts

Q'ty — Quantity used per unit

* — Minimum order and supply quantity

Rank A: Essential

B: Stock recommended

C: Others

X: No stock recommended

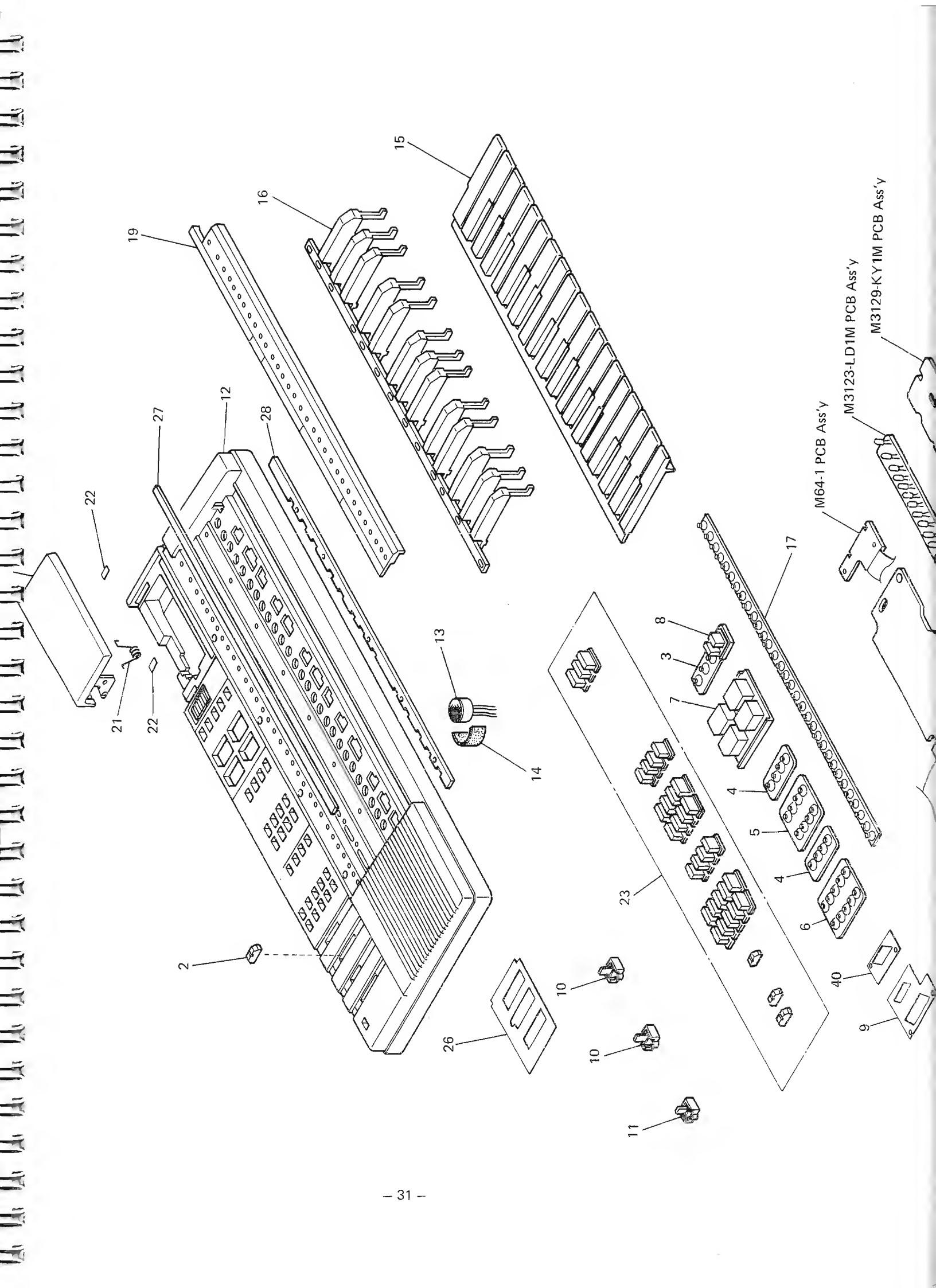
Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
2) M3123-CN1M PCB ASS'Y							
39	2301 0097	Diode	1S2473	6	20		C
	2320 9764	LED	LN251RPP.WE	1	10		B
	☆ 3725 0854	PC joiner M123B	JFF00-25-60M	1	10		B
	☆ 4307 7390	Blank PCB M3123-CN1M	M11250-1	1			X
3) M3123-CN2 PCB ASS'Y							
☆	3725 0861	PC joiner M123D	JFF00-11-115	1	10		B
☆	4307 7400	Blank PCB M3123-CN2	M43274-1	1	10		X
4) M3123-LD1M PCB ASS'Y							
☆	2320 9756	LED	LN38GPH-CS	13	20		B
☆	2320 9748	LED	LN28RPH-CS	19	20		B
☆	3725 0847	PC joiner M123C	JFF00-14-100	1	10		B
☆	4307 7450	Blank PCB M3123-LD1M	M11249-2	1	10		X
5) M3129-KY1M PCB ASS'Y							
☆	2301 0241	Diode	1SS254T-77-T	32	20		C
	3725 0868	PC joiner M123A	JFF00-12-125M	1	10		B
	☆ 4307 5041	Blank PCB M3129-KY1M	M21332A-1	1			X
6) M64-1 PCB ASS'Y							
☆	2010 2254	LSI	MSM-5268-55GS-K	1			A
☆	2818 2040	Ceramic capacitor	HE70JYF103Z	1	20		C
	☆ 4307 2131	Blank PCB M64-1	M41686A-1	1	10		X
7) UPPER CASE ASS'Y							
1	3831 0070	Speaker	EAS-8P109T	1			B
☆ 2	6909 5180	Slide VR knob	M32610-1	1	20		B
☆ 3	6909 5210	Contact rubber 121A	M43215-1	1	20		B
☆ 4	6909 5220	Contact rubber 121B	M43216-1	2	10		B
☆ 5	6909 5230	Contact rubber 121C	M43217-1	1	10		B
☆ 6	6909 5240	Contact rubber 121D	M43218-1	1	10		B
☆ 7	6909 5252	DS contact rubber 121	M32611B-1	1			B
☆ 8	6909 5490	SA rubber button	M32612-2	1	10		C

Note: ☆ — New parts
☆☆ Q'ty — Quantity used per unit
* — Minimum order and supply quantity

Rank A: Essential
B: Stock recommended
C: Others
X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
☆ 9	6909 5270	CN spacer A	M43220-1	1	20		C
40	6909 5500	CN spacer B	M43221-1	1	20		C
☆10	6909 5880	SL contact 12S	CSB-12S	2	10		B
☆11	6909 5890	SL contact 12D	CSB-12D	1	10		B
12	6909 5511	Upper case sub ass'y	M21704A*1	1			C
☆26	6910 0140	Blind	M4499-1	1	20		X
☆27	6907 0270	NM stopper B32	M42611-1	1	10		C
☆28	6908 6071	NM stopper A32	M32043A-2	1	10		C
8) MIC 129 ASS'Y							
13	3830 9021	Condenser microphone	WM-034CY	1			B
14	6907 0321	Sponge	M42612A-1	1	20		X
9) KEYBOARD ASS'Y							
15	6907 0150	White key set NW	M1843-1	1			C
16	6907 0160	Black key set NW	M1844-1	1			C
17	6907 0300	Contact rubber NW	M31953-1	1			B
18	6907 4551	Shield plate 129A	M21391A-1	1			X
☆19	6909 5520	LED panel	M21668-1	1			C
20	6911 7552	Pack cover	M31665B-1	1			C
21	6912 1182	Cover spring	M42359B-1	1	50		C
22	6902 6261	Stopper rubber 90	M41213A-1	1	10		C
10) BUTTON SET							
☆23	6909 5480	Button set 121	M32676*1	1			C
11) LOWER CASE ASS'Y							
☆24	6912 5843	Battery cover sub ass'y	M21708A*1	1			C
☆25	6909 5451	Lower case sub ass'y	M31417C*18	1			C
☆29	6909 6720	Shield plate 121A	M21733-1	1	5		X
30	6902 6690	Rubber foot A	M41361-1	4	10		C
31	6912 2630	Battery spring 120	M42382-1	1	20		C
32	6345 2238	Battery spring G55	A42606A-1	1	10		C
12) OPTION ROM PACK							
	6902 0002	Inter connector	M4950B-1	1			C
	6903 5301	Decorative panel	M41672A-1	1			C
	6905 3330	Earth contact B	M42470-1	1	20		C
	6905 3340	Earth spring B	M42469-1	1	20		C
☆	6909 5320	Label	LABEL 456D	1	20		C
	6903 5312	ROM pack case	M41716B*1	1			C

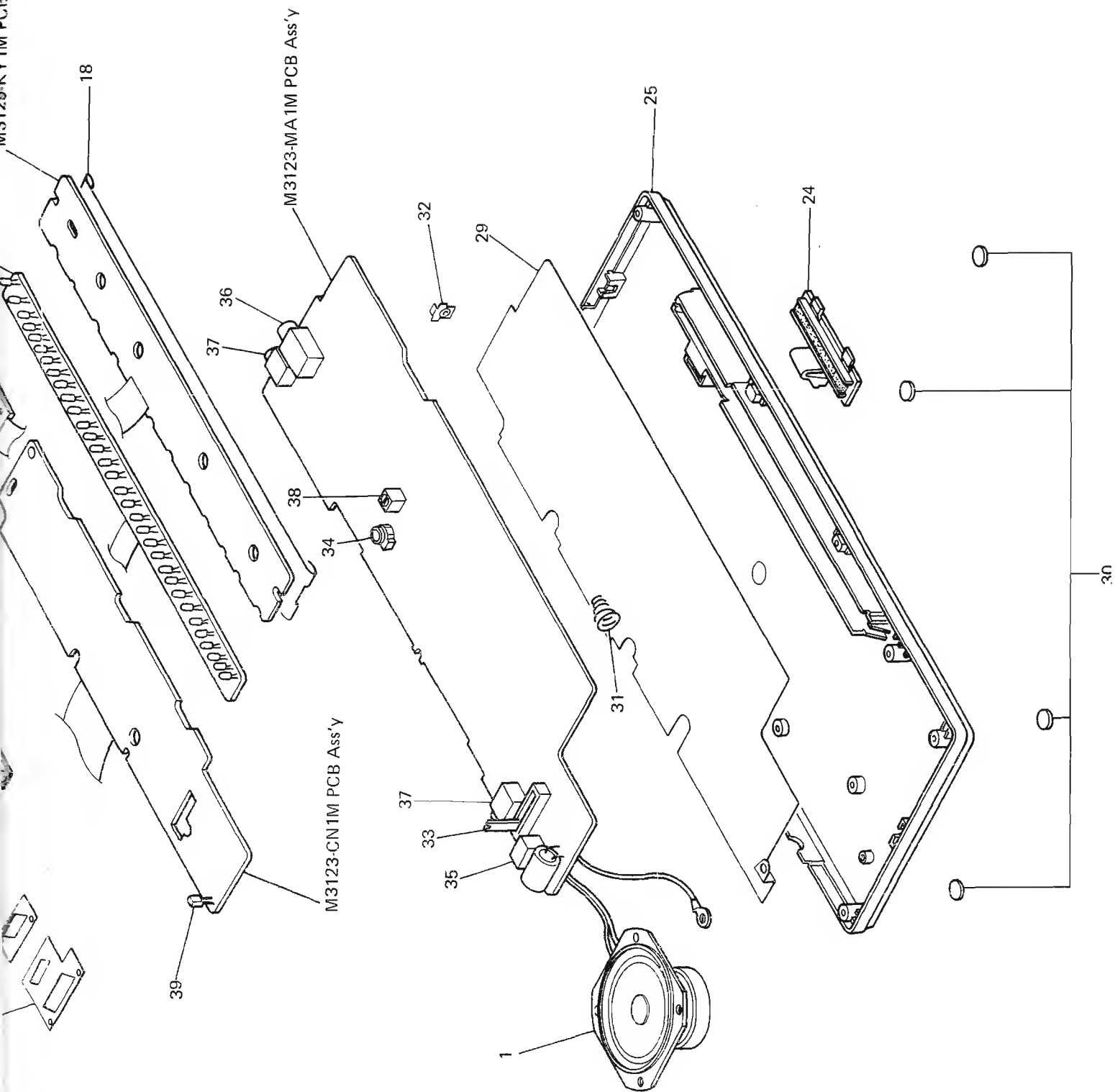
Note: ☆ — New parts Rank A: Essential C: Others
Q'ty — Quantity used per unit B: Stock recommended X: No stock recommended
* — Minimum order and supply quantity — 30 —



M3123-LD1M PCB Ass'y
M3129-KY1M PCB Ass'y

M64-1 PCB Ass'y

M3123-NY1M PCB Ass'y



This Service Manual was scanned by Joerg Zeitschel (CASIOLOGIE)

I want to thank everybody who donated a small amount, to continue this service.

To publish this rare Casio Service Manual wouldn't been possible without the efforts of the CASIOBEND Forum and the CASIO-BOARD Forum.

If everything seems to be unreadable, I will be able to make a zoomed scan of the special area on request.

Greetings

Joerg

See you at: <http://www.casiologie.de>